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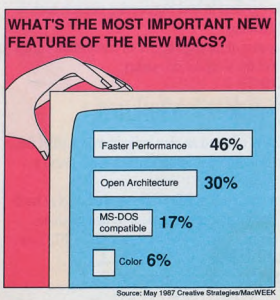


Late MacWrite upgrade causes manual miscue; successor on the way

BY ABIGAIL CHRISTOPHER
MacWEEK Staff

CUPERTINO, Calif. — In a software version of the "chicken before the egg," the Macintosh II users' manual says that only Version 4.6 of MacWrite runs on the computer, but the software is not available.

An Apple representative says the new version of MacWrite was expected to be ready when the first Mac IIs shipped in volume, but developing the upgrade has taken longer than the company anticipated.

Apple will ship MacWrite 4.6, an upgraded version of the company's word-processing software "later this summer," according to Lisa Van Horn, an Apple spokeswoman.

The tardiness in releasing MacWrite 4.6 may be because Apple has another word pro-

See MACWRITE, Page 23

Jobs warns UNIX must join industry mainstream with Mac-like features

BY GERTH HANSSON and ABIGAIL CHRISTOPHER
MacWEEK Staff

PHOENIX, Ariz. — Steve Jobs, the keynote speaker at the USENIX conference held here, warned 1,600 UNIX professionals that the multitasking UNIX operating system must join the mainstream by 1990 or it will start to die.

"Until now, UNIX hasn't really been in the mainstream. Some people think that UNIX can go on existing on the side. Unfortunately, the world is changing, and that's not going to be possible any more. I'm naturally on your side now, since our whole company (NeXT Inc. of Palo Alto, Calif.) is based on UNIX," Jobs told the crowd in the Phoenix Civic Center ballroom.

Jobs is not the only newcomer to UNIX; so is his former company, Apple Computer. Apple's entrance into the UNIX world was represented by two companies that exhibited UNIX-based products for the Macintosh II.

Unisoft, of Berkeley, Calif., demonstrated A/UX, a version of UNIX the company is developing for Apple and the Macintosh II. The company showed C, Fortran and Pascal compilers running under A/UX.

Kinetics Inc. of Walnut Creek, Calif., exhibited K-Spool, a $495 AppleTalk-based spooler that allows Macintoshes and UNIX

See JOBS, Page 24

'Feeding frenzy' greets Aldus stock

Price increases from $20 to $36 per share on first day

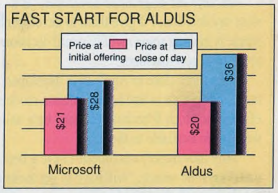
BY JIM BEAVER
MacWEEK Staff

NEW YORK — Aldus Corp. dove into the over-the-counter stock market last Tuesday and immediately sparked a "feeding frenzy" that drove the $20-per-share offer to $36 on its first day of trading.

The stock's success fits the robust financial picture for desktop publishing, software sales of which are expected to triple this year from $59 million to $186 million.

Selling 2.24 million shares at $20 per share, Aldus earned $44.8 million for the company and the shareholders. The opening bid for Aldus stock on Tuesday was $30, and the more than 2 million shares turned over once before the close of trading Tuesday.

A source close to the offering says the stock price was driven by smaller retail investors



rather than large institutional buyers and calls the price "unsustainable" for the near future. "None of the institutional buyers will touch it here (at $35)," he says, because the price-to-earnings ratio is too high.

But an East Coast broker specializing in desktop-publishing software companies says Aldus had "all the characteristics of a real hot

See ALDUS, Page 23

WORKSTATION PROFILE

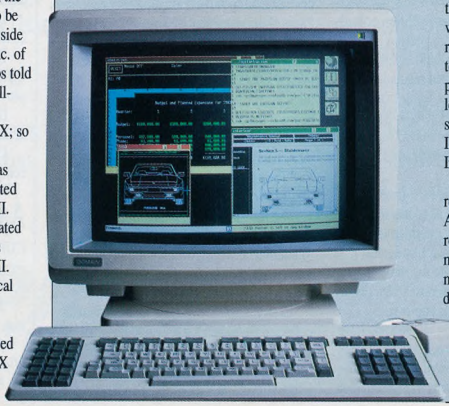
As the power of personal computers grows and the prices of engineering workstations drop, the distinction between the two kinds of computers is becoming blurred. This profile of Apollo Computer Corp. is the first in a MacWEEK occasional series of articles examining how workstation manufacturers are responding to changing market conditions.

Apollo gambles on high-low strategy

BY ROBERT BUDERI
Special to MacWeek

CHELMSFORD, Mass. — Apollo Computer Inc. has emerged weather-beaten but sturdy after a series of setbacks in the past few years that caused its lead in the engineering workstation market to evaporate.

The saga of Apollo, by most yardsticks the pioneer in engineering workstations, is one of a high flyer forced to change its ways. After a series of miscalculations, the company now seems well-positioned to grow in revenues and profits despite tougher competition for its popular products in the low-end market from personal computer makers like IBM and Apple Computer Inc.



Indeed, in its most recent quarter, which ended April 4, Apollo reported record revenues of $123 million and earnings of $6.4 million, compared with a dismal $539,000 profit a year earlier. "They have turned it around," says Montgomery Securities

See APOLLO, Page 24

Mac II is selling, but developers want more

BY JIM BEAVER
MacWEEK Staff

CUPERTINO, Calif. — The Macintosh II broke into the retail channel with a 1 percent market share for May and complaints from itchy developers who say they cannot get their hands on the machine.

One developer says Apple Computer Inc. made a "weird decision" to ship the bulk of its early Mac II production units to users rather than to developers. But May's market-share numbers indicate the company may be shipping Mac IIs to customers.

But, says the disgruntled developer, "If it were my decision, I'd give them to developers. Apple is making some awfully weird decisions about who gets machines."

One source close to Apple says developers may have to wait in line for production models of the Macintosh II because so many beta units were made available to them.

"Any [developer] who doesn't have a beta unit," says the source, "will have to get theirs at the dealer with the rest of us."

Developers without Mac IIs should not be too surprised. When the first Mac II production units went out in April, Apple said the shipments would go to "dealers, large corporate customers and universities."

But at least one analyst says developers are receiving a substantial number of Mac IIs, so many that the company expects lower than normal revenue from early shipments.

Because the Macintosh II represents a new design and a major strategy change for Apple, it was bound to run into the problem of where to ship the first machines, says a Wall Street analyst: Should they ship to users who are anxious to "kick the tires" and run existing applications or to developers who drive the market in the long run?

Timely shipments to developers are critical, says the analyst, and the decision to target customers could indicate Apple expects to reach volume shipments before its September target. That might not be a bad idea if the Mac II hopes to grab some of the 15 percent market share IBM's PS/2 garnered in May.

But until more developers have Mac IIs, says a West Coast analyst, the machine will remain "just a souped-up Mac."

"The II's capabilities are not being fully exploited by the current software," he says. "A lot of developers view [the Mac II] as a window of opportunity. Initial shipments should go to developers because they'll drive the Mac II market a year from now."

But for Apple, he says, the Macintosh II is doing as well as expected.

Overall, according to San Jose, Calif.-based Infocorp, the Macintosh line took 16 percent of the retail channel for May. The SE had 8 percent, the Plus 6 percent, and the 512K and Mac II each had 1 percent. ■

$5 per hour fee hike proposed for telecom users

BY JIRI WEISS
MacWEEK Staff

WASHINGTON — The Federal Communications Commission (FCC) has proposed changes that would raise the costs of connecting to computer communications networks such as McDonnell Douglas Corp.'s Tymnet and U.S. Sprint's Telenet by about $5 per hour starting January 1988.

The FCC proposal would charge computer networks the same interstate access charges now levied on long-distance telephone companies such as AT&T, MCI and Sprint.

Networks will be charged depending on how they are configured and whether they use a local exchange or their own facilities, according to Ruth Milkman, an FCC attorney. Only interstate communications would be affected.

It is unclear if the proposed regulation will affect Apple Computer Inc.'s AppleLink communications service, according to an Apple official. However, the access charge would send the costs of using MCI Mail and CompuServe skyrocketing.

"We are still studying the FCC proposal, but it would certainly cause us to reassess our pricing structure," says Dave Kishler, of CompuServe. "We will definitely lobby against it and are urging our users to do the same."

Others affected by the proposed charges say it will threaten the industry's survival.

"We started from nothing in 1965 and have grown to a $30-billion-a-year industry," says Warner R. Sinback, manager of telecommunications affairs for General Electric Information Services, Rockville, Md. "Now they are proposing something that threatens our survival." Sinback serves as chairman of the domestic telecommunications committee for ADAPSO, the Association of Data Processing Service Organizations.

One such threatened service is GE's own GEnie, Sinback says. GEnie provides bulletin boards and databases to about 55,000 customers, he says. Its current off-peak linkup rate of $5 per hour would double.

"The greatest harm would be to residential, small business and educational computer users who are just beginning to have affordable online computing and information services," says Paolo Guidi, president of Telenet.

The access charges were set up in 1983 as a result of AT&T's divestiture to compensate local telephone companies for the use of their lines. But computer networks were exempt because the FCC feared the charges would drive such networks out of business, says Rosemary Kimball, an FCC spokeswoman.

"They are not paying their fair share of costs; now they can afford to," she says.

The proposed charges discriminate against third-party vendors because they do not apply to internal networks, Sinback says. The charges may result in the networks trying to bypass the local telephone companies altogether.

Even if implemented, the amount actually collected from the charge would be small, says Sinback. "If the idea is to collect more money for the local networks, then this is a small drop in the bucket." ■

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LATE NEWS

DEC slashes workstation price; announces new models

MAYNARD, Mass. — Digital Equipment Corp. caught the industry by surprise last week by halving the price of its 32-bit low-end workstation.

The VAXstation 2000 with a 19-inch monochrome monitor now sells for $5,400. The company also said it will ship $4,600 monochrome and $7,900 color workstations in December.

The new monochrome model will include 4 Mbytes of RAM, a built-in Ethernet adapter and a 15-inch 1,024-by-864-pixel resolution monitor. The color model supports 16 colors with four planes on the screen. Pixel density on the monitor is greater than 100 dots per inch.

The VAXstation 2000 is based on a proprietary 32-bit processor, the MicroVAX II, running at 20 Mhz. A floating coprocessor is included.

The workstation runs both DEC's VMS operating system and ULTRIX, DEC's version of UNIX. DEC includes one year of on-site support for the hardware and its own software, the company said.

Digital intends the new workstations to break new ground in non-engineering markets such as desktop publishing, banking, insurance and security trading.

Digital, although favored by large businesses because of the high degree of compatiblity of its computer line, has captured only a 10-percent share of the workstation market.

Apple warns Mac users of hard-disk setup failures

CUPERTINO, Calif. — Apple Computers Inc. recently released an alert bulletin over AppleLink, recommending that Macintosh SE users upgrade to hard-disk SC Setup Version 1.4 to avoid a potential loss of data.

Though Apple had reported a week earlier that Version 1.3 of HD SC Setup would solve hard-disk initialization failures, it found that Version 1.3 may cause data loss with certain machines.

According to the bulletin, only SEs with serial numbers starting with F721, F722 or F723 are affected; machines with numbers F724 or higher are compatible with Version 1.3.

Apple recommended problem machines be updated or reinitialized with Version 1.4.

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Lithographer to remedy PostScript deficiencies

BY CLAIR WHITMER
MacWEEK Staff

NEW YORK — A PostScript interpreter for the Mac II is planned to be introduced at the upcoming Macworld Expo by Knowledge Engineering.

The software applications project, called the Lithographer, is intended to "replace PostScript to some extent," according to William Bates, president of Knowledge Engineering. "It will simulate and replace PostScript halftone machinery and traditional image enhancement."

The software, compatible only with the Mac II, will remedy PostScript's inability to produce professional-quality halftone images. "One of the major missing puzzle pieces in desktop publishing is halftoning."

Major problems are the inability to control the exact size of the halftone pixels and the relatively low dots-per-inch density of laser printers. The Lithographer enables users to precisely control the halftone dot size and send output directly to a typesetting device like the Linotronic 100 or 300.

Apple Computer Inc. considered the project significant enough to provide Bates with one of the first production Mac IIs off the line. "Number three or number seven, I'm not quite sure," says Bates. Apple Creative Services, in fact, used an earlier version of Lithographer, Bates says.

The company is negotiating with a number of hardware manufacturers, including at least nine different input device manufacturers, to establish compatibility and perhaps OEM contracts.

Bates would not comment on the exact nature of the hardware because of confidentiality contracts. He did say that some of them are long-established products, while others have yet to be released. The latter category may include a laser-printing device capable of roughly 2,500 dpi.

The program may be bundled with these unspecified products instead of sold directly on the retail market, says Bates.

The software will work with standard laser printers but basically only for proofing purposes, since such equipment does not take advantage of its high-end capabilities.

As for the question of whether Lithographer will be compatible with established page-layout programs like PageMaker, Bates replies, "Basically yes, with a few caveats, and they have to do with special effects."

The programs will be able to handle the effects themselves, but they may result in files of more than 800 Kbytes, which then cannot be stored on floppy disks.

The Lithographer is intended to work best in monochrome ~~in conjunction~~ with Knowledge Engineering's Just Text.

Another project, which does not have a name yet, is designed to remedy a second PostScript weakness. When dealing with color, PostScript is theoretically capable of producing any angle on any screen, but, according to Bates, "the available angles of any quality are limited." Colors are overlaid in angles that resemble Seurat paintings instead of linear images.

With both of these projects, Knowledge Engineering wants to lessen the gap between desktop theory and publishing reality. "Let's face it, in some ways, DTP has become associated with low quality," says Bates.

Bates says he is trying to bring things from the publishing industry to a desktop level, instead of the other way around. ■

VeraSoft database will link Mac IIs, IBM PCs

BY KRISTINA B. SULLIVAN
Special To MacWeek

SAN JOSE, Calif. — Connecting IBM PCs to Macintosh IIs through a common database system is the goal behind an upcoming release of dBMAN-MAC, a database management system (DBMS) from VersaSoft Inc.

The new release of dBMAN-MAC, compatible with Ashton-Tate's dBASE III Plus for the PC, will allow users to access data stored on dBMAN-net, the PC version of the package, says Charlie Tseng, VersaSoft's president.

To accomplish this, both dBMAN-MAC Version 2.0 and dBMAN-net Version 4.0 will support the TOPS network by Centram Systems West Inc., a division of Sun Microsystems in Berkeley, Calif. The TOPS network allows Macintosh, PC and UNIX-based computers to be linked through a local area network (LAN).

"Once data is generated on the PC, a user on the Mac can access data on the PC via the TOPS network," says Tseng. At the same time, a PC user can access the same data without corrupting it, he says.

According to a Centram spokeswoman, no DBMS that runs on both the PC and Macintosh is currently compatible with TOPS. Users can access Lotus 1-2-3 files through Microsoft Excel via TOPS, for example, but since TOPS-specific LAN versions of those products are not available, several users cannot access the data at the same time, says Kim Criswell, Centram director of corporate communications.

To run the TOPS network, the software is $149 per Macintosh; software plus interface card is $389 per PC. Cabling is required.

New versions of dBMAN-MAC and dBMAN-net also will be able to read and write dBASE files (DBF), allowing users to access data stored in the Ashton-Tate standard file format. However, dBMAN is not index-file compatible with dBASE III. To make use of dBASE III database files that have been indexed, the user must re-create the index through a command in dBMAN.

Due in August, dBMAN-MAC Version 2.0 will sell for about $500, says Tseng. The current single-user version on the Macintosh is $249.95. On the IBM PC, the multiuser price is $595 for an unlimited number of users, and $199.95 for the single-user version. ■

SNAPSHOTS

General Computer drops Hyperdrive 10, 20

CAMBRIDGE, Mass. — Macintosh-hardware pioneer General Computer Corp. has dropped the HyperDrive 10 and HyperDrive 20 internal Macintosh hard disks.

The company says it will no longer manufacture the hard disks because of slow sales.

The products will continue to be supported through General Computer dealers, and the HyperDrive 2000 hard disk/accelerator card is available on special order. End-user phone support also has been dropped to concentrate resources on dealer support, the company says.

The drop in sales may have been because of reliability problems, according to Becky Waring, co-director of the Boston Computer Society's Macintosh user group.

"Many of our users have experienced multiple problems with the internal drive," she says.

The newer HyperDrives seem more reliable, according to Waring. "About six of us bought external drives at the Macworld Expo, and all of us have been very happy with them."

General Computer is now shipping the new FI/40 internal drive and HyperCharger 020 accelerator board for the Mac SE as well as the HyperTape 40-Mbyte tape backup and the FX/20 and FX/40 external disk drives.

John Ison, General Computer's director of marketing, attributed recent layoffs to a tighter "focus" on the part of the company.

With GIF, it is better to give and to receive

COLUMBUS, Ohio — Mac users can now send graphic images to PC users or users of other incompatible machines through a new file format introduced by CompuServe Inc.

The Graphics Interchange Format (GIF) allows the exchange of graphic images through the use of file encoders and decoders for the creation and reading of GIF files.

Both types of programs are placed on the CompuServe Information Service hardware forums. Encoders or decoders are available for the Macintosh, Commodore Amiga, IBM PC and compatibles or Atari ST machines.

The encoding and decoding files are free for CompuServe subscribers. They also reduce the file size by one-eighth to one-half, reducing download time and cost.

Emulator lets Mac talk to Hewlett-Packard

AUSTIN, Texas — Macintoshes can now talk with the Hewlett-Packard 3000, 9000 and 1000 minicomputers by using the new version of Tymlabs Corp.'s terminal emulator, the Mac 2624.

While aimed at networks that need connectivity between the Macintosh and HP minis, Mac 2624 also allows users to log onto CompuServe and other public networks. The new version supports MacBinary file-transfer protocol as well as transfers on 7-bit and control-character-sensitive networks. Mac 2624 also can be used for foreign language transfers.

In addition, the program provides mouse-controlled on-screen buttons and keyboard-generated commands. The ability to paste multiple lines of text onto the Clipboard has been added.

Version 2.1 can send to any printer on an AppleTalk network and spools automatically.

MacTable can handle computer-desktop clutter

REDMOND, Wash. — They call it desktop publishing, but who has room on one desk for all that hardware and a rolodex, too?

Owners of the MacTable from ScanCoFurn do.

The table is designed to support the weight of a Macintosh SE or Mac II and a LaserWriter, yet still provide room for the keyboard and miscellaneous desktop clutter. All surfaces can be tilted to improve visibility and choose the working angle for the keyboard and mouse.

Made of beechwood, the table sells for $269. An optional cabinet with one lockable drawer and another space for a LaserWriter sells for $129.

A natural wood model is shipping now. A black-and-white table will be available in late July, priced at $335.

PAUL MORRELL

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Putting 4th Dimension through its paces

SCOUTING REPORT

MacWEEK Technical Editor Ric Ford recently joined 30 database experts and user-group representatives for two days of hands-on training in 4th Dimension, the long-awaited application generator from Acius that President Guy Kawasaki says will ship in two weeks. Ford's impressions follow:

Having put 4th Dimension through its paces for two days, I can report that it is the most capable database program yet for the Macintosh. It also adheres closest to the Macintosh user interface.

The version we worked with lacked a little of Omnis 3's (Blythe Software) raw speed but more than made up for it with a set of functions that appear to encompass all the best features of competing database managers. In addition, it provides powerful new abilities, such as access to external routines written in programming languages like Pascal and a full-featured procedure tracking mechanism.

4th Dimension supports record-locking and multi-user databases — something we had no time to try — and has built-in routines for serial port communications and for transfer of data between databases and other files.

One question was answered quickly by the enthusiastic experimenters in the class: 4th Dimension is surprisingly robust. Despite the fact that it was a prerelease version, it was bomb-free. When I created artificial havoc by restarting the computer at crucial times, 4th Dimension recovered gracefully and warned that there was a problem. This proved to be no trouble, though, because a 4D Tools application supplied with the program rebuilt the database and the indexes with ease.

Data import and export (SYLK, DIF and text) was somewhat slow compared with Omnis 3, but all operations appeared to be faster than Helix equivalents. Data entry and sorting a test file of 4,000 five-field records was reasonable, even though I was using a Mac Plus instead of a II or SE equipped with an accelerator card.

Some developers were concerned that 4th Dimension may not be able to use the high-speed Corvus Omninet network or support quite as many concurrent users as Omnis 3, but, overall, response to the product was enthusiastic. It is clear that 4th Dimension can be used quickly to put together very sophisticated database applications with all the Macintosh trappings: menus, dialogs, scrollable lists, pictures, fonts and styles.

The program's author, Laurent Ribardiére, who previously wrote custom database applications in Pascal, created 4th Dimension to speed up the development process. The end result isn't just efficient; it's actually fun.

Acius is a small company — currently, fewer than 10 employees. Kawasaki is taking a novel, grass-roots approach to marketing, targeting user groups and opinion leaders first via word of mouth and direct contact rather than advertising. Kawasaki told us that 4th Dimension will be priced at $695, with a four-pack of runtime versions for $295. Technical support will be free.

Version 1.0 of 4th Dimension will not be perfect, but it appears to be very good. It has been used extensively in Europe, and it received unique support from Apple during its development. It has a good chance of becoming for the Mac what dBase III was for the PC. If performance can be boosted a little in the future, 4th Dimension could make dBase III and many current Mac products obsolete. ■

Reported delay in OS/2 a boost for Macintosh environment

BY JIRI WEISS
MacWEEK Staff

REDMOND, Wash. — Recent reports of delays in the release date for OS/2, Microsoft Corp.'s next-generation operating system for IBM PS/2 computers, may give added momentum to the Macintosh, according to developers and industry observers.

While the rumors have been denied by both Microsoft and developers who attended the company's recent OS/2 developers' technical seminar, they underscore the lead enjoyed by the Macintosh environment.

"As we have said before, we have the operating system now and we have a momentum built up among developers," says Marianne Lettieri, an Apple spokeswoman.

"This certainly isn't bad for the Macintosh," says Jim Klauber, vice president of the Paramus, N.J.-based Letraset USA.

"It's not surprising that OS/2 is behind," says Philip Lipetz, president of Ann Arbor Softworks Inc. in Newbury Park, Calif. "The Mac has been under development for the past three years; it's hard to catch up overnight."

Microsoft, however, denies that OS/2 is behind schedule. "We don't understand where the rumors come from," says a spokesman.

Microsoft has already started shipping to developers the OS/2 kernel — similar to an extended version of DOS — two months ahead of the original August release date.

But the kernel is only one part of the operating system. What could be behind schedule is the Presentation Manager, the visual interface similar to Microsoft Windows, a Macintosh look-alike windowing environment, according to a developer of graphics software for both Macintosh and IBM machines who attended the seminar.

> "It's not surprising that OS/2 is behind. The Mac has been under development for the past three years; it's hard to catch up overnight."
> PHILIP LIPETZ, PRESIDENT, ANN ARBOR SOFTWORKS

"They did not even show the Presentation Manager at the seminar. Maybe that's what upset some people," he says.

"Actually there's nothing behind schedule," says the developer, who declined to be identified. "But that's because nobody has even announced a date when the OS/2 Presentation Manager will ship."

That release date announcement is supposed to come from Armonk, N.Y.-based IBM Corp. in December, he says. "This is heavy-duty vapor ware."

The developer says he expects the Presentation Manager to be ready in the fall of 1988.

At this time, the IBM and Mac graphics developer has received only a stack of 15 disks containing the multitasking OS/2 kernel. He has yet to receive the specifications for the Presentation Manager, which Microsoft says will ship in August, and this is slowing his development.

"They tell you to develop for [Microsoft] Windows 2.0. That means you still have to port your applications. … It's not hard, but the calls are different.

"From the developers' point of view, at least now they (Microsoft) have shown their hand," the developer says. "But as far as users are concerned, they may get tired of waiting."

The developer's speculation seems to be borne out by reports of slow demand for PS/2 models. IBM has strongly denied the reports.

"The models are selling well," an IBM spokesman says. Furthermore, the high-end Model 80 is starting to ship to dealers this week, a month ahead of schedule, he says.

Developers have no choice but to wait for OS/2, no matter when IBM comes out with the Presentation Manager, according to Roy Folk, executive vice president at Ashton-Tate.

"The Mac has gone beyond the threshold of being viable as an alternative to IBM ... The delay in the OS/2 will give the Mac the ability to become even more established," he says.

The graphic software developer who attended the Microsoft seminar, however, says he believes the race between IBM and Apple is neck and neck, with Apple trailing slightly.

OS/2 will have a graphic interface, called Graphic Programming Interface, superior to Apple's QuickDraw, he says. "It's huge, 10 times the size of QuickDraw and close to PostScript in functionality."

"Unpublished software is always better than what's out there," says Paul Cubbage, senior industrial analyst at Dataquest Inc., a market research firm in San Jose, Calif. Comparisons may be meaningless because by next year the Macintosh itself will be further ahead.

"We are comparing virtual pears with real apples. We know why the Mac is terrific; we don't know that OS/2 is going to be terrific," he says. ■

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Altsys' Masterpiece enters beta testing

BY MARY FRIEDLAND
MacWEEK Staff

PLANO, Texas — A graphics program reputed to set new standards in high-quality output is nearly ripe for release. Altsys Corp. plans to announce a page-illustration package, code-named "Masterpiece," at the August Macworld Expo in Boston. The product goes into beta testing in July.

Masterpiece will join a highly competitive illustration arena currently dominated by Adobe Illustrator and Cricket Draw. But Altsys President Jim Von Ehr says his product surpasses both of those in accessing the power of PostScript and in its use of color.

Von Ehr started developing Masterpiece more than a year ago, intending for it to interface with desktop-publishing software. (Since late 1984 he has been creating desktop-publishing products such as Fontographer and FONTastic text font editors.)

Early into development, Von Ehr saw a big gap between the graphic potential of PostScript and the limited use made of it by most graphics software.

"We needed standards for how programs communicate high-quality output," Von Ehr says.

Envisioning a more direct route to PostScript's complex commands than the then-standard PICT format, Von Ehr wrote the original specifications for Encapsulated PostScript (EPS). He enlisted support from Aldus and Adobe to finish the job.

PostScript is a page-description language in text format that sends graphics information to a laser printer. EPS, a form of the PostScript language, is a standardized format for porting drawings between applications and displaying them on screens.

"[EPS development] held up Masterpiece," Von Ehr says, "but with it Masterpiece can integrate with any program that supports EPS. You can even send images created on Masterpiece to a PC."

Von Ehr says his program contains many PostScript capabilities lacking in other illustration packages: "Illustrator doesn't have a tangent tool for making a straight line between lines and curves. Cricket Draw can't take straight lines and curves and put them together in a PostScript path."

Von Ehr describes Masterpiece's color capability as "the four process colors and unlimited spot colors." He says that Masterpiece is unique in the way that it specifies color to the user.

"Programs like Illustrator force you to think of a color in terms of the four process colors that compose it. Masterpiece supports PMS (Pantone Matching System) colors, which are the colors that graphic designers typically use. [With Masterpiece] you can give a name to any [PMS] color and later use that color by name," says Von Ehr.

The most innovative feature of Masterpiece, Von Ehr says, will be the support of "add-on PostScript modules" that will allow those people who know PostScript well to create customized features and pass them on to other users.

As an example, Von Ehr cites a "neon effect" developed by an alpha tester — a style of line that is very bright in the middle and fades toward darkness at the edges.

Even as Masterpiece roosts in the alpha stage, Simon Tuckett, president of GraphiComp Design in Toronto, uses it every day. He says Masterpiece is "a very flexible package" that "takes advantage of more PostScript operators than any product now available.

"Everything is specifiable," Tuckett says. "It is a very good program for working with art directors because drawings can easily be modified."

Neither Tuckett nor Von Ehr, fearing a scoop by the competition, would elaborate on what is specifiable in the program or how the program makes modifications. ■

PC bibliographic program may be ported to Mac

BY CLAIR WHITMER
MacWEEK Staff

ANN ARBOR, Mich. — Pro-Cite, a PC-based database management and text-processing program for bibliographic information, may soon be available for the Macintosh, according to Victor Rosenberg, president of Personal Bibliographic Software.

PBS has specialized in providing software for the PC market that simplifies on-line research. Pro-Cite, its latest release, is designed to produce formatted bibliographies and provide text management for downloads from on-line resources and electronic document-ordering capabilities. A new version that will allow files to be imported between PC and Macintosh databases via a TOPS network will be introduced at the Macworld Expo this summer.

The company intends to provide "databases that are exactly identical" for the two types of machines, says Rosenberg.

When the product is introduced, a wide range of on-line services will be available to Mac users, Rosenberg says. Using PBS' companion programs, called Biblio-Links, information can be downloaded and transferred to Pro-Cite from database systems.

Biblio-Links released for PCs can now connect to the Library of Congress' MUMS and Scorpio systems, the National Library of Medicine's MEDLARS system, United Microfilm Inc., Elsevier, and the Dialog and BRS Information Technologies system. Links to WLN, the MARC communications format, and others are being developed.

A version of Pro-Search, PBS' original program, also is being developed for the Mac. For use with Dialog and BRS, Pro-Search allows users to organize their search strategies off-line, automatically dial into the service, select databases, perform searches and download the results. ■

COMMUNICATING

You have to feel sorry for people who hold certain types of jobs. The guys who paint the Golden Gate Bridge, for example. Here is a group of dedicated professionals who risk their necks year-round taking care of a national treasure. Yet, outside of a measly paycheck, what do they get for their efforts?

John Edwards

They get a bunch of pot-bellied tourists cursing at them for ruining their snapshots. Life just ain't fair.

The communications field offers its own lousy employment opportunity: the job of network manager. Think about it. When was the last time you hugged a network manager? Conversely, if you are a network manager, when was the last time a co-worker threatened you with physical harm? Yesterday? This morning? Is someone threatening you as you read this?

Network managers are despised for the same reason some people hate God. Like the Almighty, managers are in the position of handing out and denying benefits. God gave some of us good looks and wealth. Network managers give some of us file access and storage space.

Many network managers admit they are uncomfortable with their powers. They would prefer, they claim, to fulfill all of their users' sweetest desires. But then, I suppose God may feel uncomfortable with his abilities, too.

Just as no one obtains the position of God by sending in a resume, few managers arrive at their exalted status by actively seeking the post. Most are lifted from the ranks of mortal employees: systems analysts, office managers, prison guards and so on. When the job offer is tendered, the manager-to-be has no idea what fate awaits. The truth soon becomes evident. Network managers are forever torn between the requirements of users, corporate management and vendors.

Users, for their part, demand a reliable network that meets all of their needs, or "whims," as some managers see it. Some user desires are reasonable, like having access to the LaserWriter or wanting to swap electronic mail with colleagues. Other users make demands the manager can never meet, like when Joe in shipping asks to poke through the personnel files.

As the manager struggles to keep pace with user demands, he must also strive to get along with corporate management. Such cooperation usually boils down to cutting costs. This, of course, will have its effect on network performance. When the system finally collapses because of cut corners, users will typically retaliate by complaining directly to management, thereby torpedoing the manager's efforts at cooperation. Network managers think baseball umpires have cushy jobs.

And the excitement never stops. In addition to dealing with irate users and cost-conscious bosses, the manager must cope with network vendors. Vendors have one job: to sell equipment and software. They will never admit that goal to anyone, though. They will nobly say, "We're here to increase your organization's connectivity and productivity."

The manager, a gnarled veteran of countless sales pitches, listens to this line with a blank expression. Hearing a vendor talk about connectivity and productivity is sort of like listening to Imelda Marcos speak about thrift and charity.

In network vendorland, everything is "just down the road." For example, a manager will ask the vendor if it is possible to place a certain peripheral on an AppleTalk network. The vendor will nod sagely, place a concerned look on his face and solemnly utter, "Not at the moment, but we see that happening just down the road." The manager will nod agreement and think, "It'll never happen."

If something is not just down the road, it is always available at extra cost. Oh, all sorts of wonderful things are available at extra cost, like an ability to share files and peripherals. If you are willing to pay, vendors can make products do all sorts of fantastic things. And if it cannot be done right now, it is always a possibility just down the road, right?

Still, some vendors do try to help managers cope. Apple, for example, offers a network administrator's course through its dealers. The $1,200, two-day session features topics like hardware and software compatibility, third-party workstations and wiring.

But what is also needed are regularl sensitivity sessions for network managers, corporate management and users. With all the yelling and complaining a network manager has to endure, a few hugs every now and then would be kind of nice, too. ■

Rodime's hard drives feature 28-millisecond access times

PEPPER PIKE, Ohio — Rodime Inc.'s Peripherals Systems Division has announced three new internal SCSI hard drives for the Macintosh II with an average access times of 28 milliseconds.

The 450 RX, which will also work with the Macintosh SE, is a 45-Mbyte, 3.5-inch Winchester drive. List price for the 450 RX, which has been shipping since the beginning of June, is $1,595.

The 1000 RX, a 5.25-inch Winchester drive with a formatted capacity of 100 Mbytes, will begin shipping this week. It carries a list price of $2,995.

The 1400 RX, a 140-Mbyte, 5.25-inch Winchester drive, will begin shipping in July. List price will be $3,495.

All three drives come with a one-year warranty, backup software and all brackets and cables necessary for installation. ■

Desktop publishers left to fend for themselves

BY PRESTON GRALLA
Special to MacWeek

Getting off the shrink-wrap is easy.

Learning to run the program is only a little tougher.

But for most users, the hard part about desktop publishing is figuring out how to turn themselves into art directors overnight.

Suzanne Watzman, president of the Watzman and Keyes Information Design firm of Cambridge, Mass., says she believes software developers have misled users into believing that anyone can become a designer simply by buying their packages.

It is a complex problem, she says, "because desktop publishing calls in visual literacy, content and production issues. The vendors are not addressing this because it's such a competitive market and it's all they can do to sell their products."

"Hype," Watzman adds, "leads to great disappointments."

Anyone can learn to push the right buttons and make a computer obey, but today's full-powered desktop-publishing packages give one person the tools and power previously spread among a small army of page designers, graphics directors, copy editors and typesetters. Before the advent of desktop publishing, a corporation would often have separate departments for writing and editing documents, creating art, laying out newsletters and overseeing typesetting and printing. Now, one person has to master disciplines that previously were in the hands of many.

Desktop-publishing developers are just beginning to recognize the problem and provide real help, not just instructions on how to push the buttons on the application software but why to press them, and when. Effectively, they are starting schools for design, production and art direction with the corporate world centered in their sights. Design aids run the gamut from simple hot lines to design templates, training programs and comprehensive corporate support.

Some users believe these design-training packages are too little, too late. Many people still are not aware of the support programs, and in some cases the programs do not go far enough. In addition, some experts in the field have the opinion that such support programs may not be very useful because the use of desktop publishing varies so much from site to site in the corporate world and support programs would be too general to be of much use.

"The companies need to support users with real solutions rather than just to hype their hardware and software," says Watzman. "The problem is not learning the technology, but applying the technology correctly."

Watzman suggests that software makers should offer training not only in how to use products but also in visual literacy, sensitivity to design issues and "when to hire a designer."

The firm that has probably done more than any other maker of desktop-publishing software to educate users is Aldus Corp. This Seattle-based maker of the popular PageMaker program has a comprehensive range of aids, from templates to training sessions, and several levels of corporate support.

While PageMaker has been around for two years, the company only began a sizable corporate support program at the end of March. For $1,000 a year, Aldus allows users to make unlimited calls to a toll-free hot line. Also included in the package are free PageMaker upgrades, subscriptions to two Aldus newsletters that provide design tips and technical information, and technical support notes that include revisions to PageMaker's user manual.

For an additional $1,000, a corporation can buy into a one-day "train-the-trainer" class provided by Aldus for up to 10 people. In the class, corporate trainers learn how to train end users to use the package and the fundamentals of electronic page layout. The class is available to users who are not already enrolled in the corporate support program for $1,500.

Aldus also offers the introductory training materials alone, without the trainer, for $600.

Finally, the company has released a set of templates, disks with 21 preformatted newsletter designs. The set is the first in a series that will include designs for manuals, brochures, letterheads, forms and presentation graphics. A 68-page guide to basic design also is provided by the company free to all registered PageMaker users.

Quark Inc., the Denver-based maker of XPress, provides only a hot line. The first 90 days are free; an additional $100 extends phone support for a year.

Letraset, the Paramus, N.J.-based company that bought the rights to market and distribute Ready,Set,Go! 3, is expected to release design templates in the fall. While no one will officially confirm such a release, sources within the company say a corporate training program also is being considered.

Many design specialists say desktop-publishing support hot lines are defined too narrowly by vendors; design issues should be addressed as well as just answering questions about software.

At a large New York-based corporation, for example, one user of PageMaker said, "It's a great program, but there's a lot I don't know how to do. I'm a writer, and you have to have an eye for design, know layout, typefaces, kerning and leading, which the average writer doesn't know about. You need training; you can't expect people to learn the program overnight." The user had never heard of the corporate support program offered by Aldus.

Jeffrey Albert, graphics editor for USA Today, suggests desktop-publishing companies should emulate the support he gets from Apple. USA Today uses 25 networked Macs to produce graphics, and when Albert has a question or problem, he uses AppleLink to talk directly to Apple.

"I get an answer back in one business day," he says.

Jim Cornacchia of the New York-based Electronic Directions Group, agrees that a users' electronic hot line is needed, but he suggests that desktop-publishing firms go even further and establish bulletin board services.

But Cornacchia says he has no great hopes that software makers will provide comprehensive services for users of their packages because the software is used differently at each site.

Because of the proliferation of desktop-publishing programs and the problems that come with them, it should come as no surprise that training centers, consultants and designers are springing up right and left to give help not currently provided by software makers.

The Electronic Directions Group was started in mid-March, and it specializes in desktop-publishing training. "People can learn to push buttons elsewhere, but desktop publishing requires learning publishing concepts. Desktop publishing is putting incredible tools into the hands of people who don't understand them," says Barbara Hawkins, director of the firm.

Courses are offered not only in specific packages but also in basics such as "Paper and Ink."

Woodrow Vandever, executive vice president of the Interconsult consulting firm based in Cambridge, Mass., says the first wave of desktop-publishing users were technically inclined and did not need a great deal of help from software makers. But, he says, the first wave has receded.

The second wave are adventurous people in the corporate world who have installed equipment and bought software but do not have a support staff to aid them. They are more interested in solving a specific problem, like how to put out a newsletter inexpensively and efficiently, than in learning about technology. Because of this, they need a great deal of support.

Smart software developers are recognizing this, Vandever says, and view it as an opportunity for greater profit. He points out that while PageMaker sells for $495, Aldus corporate support programs can run as high as $2,000 a year, more than four times the price of the software.

"You can sell people oil paints and wonderful sable brushes," he says, "but it still doesn't turn them into Rembrandts or Van Goghs." ■

Purists fear clones of PC programs

Is the Macintosh "look and feel" in jeopardy?

BY TONY REVEAUX
Special to MacWEEK

Who's afraid of the fast-food, quick-transfer port-o-clones?

In the rush to cash in on the explosion of Macs into the business marketplace, publishers are releasing half-baked, rush-job clones of popular PC programs. Some purists have expressed alarm that such byte-for-byte translations somehow cheat users of the "true" Macintosh experience.

How much of the recent "clone-phobia" is real? How much is sheer paranoia?

Experts seem to agree, cautiously, that the worst days are behind us.

"Porting" a program, rewriting a successful PC application so it runs on the Mac with Mac-like "look and feel," can be a long, slow, tough job.

"Three years ago," says David Intersimone, director of product services at Scotts Valley, Calif.-based Borland International, "there was very little software for the Mac and a resulting urgency felt by the users' queue as well as the developers' queue to bring products to market as soon as possible."

"Some of the very early programs on the Mac were just ports of PC products," agrees Adam Hertz, systems architect for Lotus Development Corp. of Cambridge, Mass. "Doing a Macintosh user interface takes a lot of time and talent, and they didn't make proper use of it. The users often had to type in their commands instead of simply pointing and clicking."

"Initially there were a couple of applications that didn't really use the Mac user interface completely," says Robert Carr, chief scientist at Ashton-Tate of Torrance, Calif. "But developers soon got the message that they couldn't do that. Ever since then, there's been an almost unanimous adherence to the Macintosh interface."

"The [impression] of a 'rush to port' may have more to do with the marketing hype of entrepreneurs and venture capitalists dabbling in the software market than of PC developers themselves," says David Winer, president of Living Videotext of Mountain View, Calif. "It's a balloon that needs to be deflated."

What is so hard about porting programs between the PC and the Macintosh anyway? Why is it such a rough path to follow, with such potential pitfalls for the user?

The heroes and villains of this tale happen to be the same: the advanced operating system and the graphic user interface (GUI) that give the Macintosh its basic "look and feel." The GUI, Mac's "front end," with its screen icons is fundamentally different from the command-line interface that runs the MS-DOS PC.

What is more, the "back ends," the invisible operating system and machine language code that run just behind the screen, are as different as icons are from DIR I SORT > PRN.

Developers trying to move an application from one machine environment to the other must concern themselves with both ends at the same time.

The back end, the "engine" of the program, is concerned only with managing the user's data and uses the operating system to perform the calculations, disk accesses and memory manipulation required. The front end, or the user interface, is concerned only with presenting the results to the user and providing controls for their manipulation.

A registered developer who wants to produce software for the Macintosh needs to know how the Macintosh engine works. He is provided with Apple's "Inside Macintosh," a comprehensive toolbox of instruction sets, routines and formats, all of which emphasize consistency in the user interface, since Macintosh users expect Macintosh programs to behave with the same kinds of basic mouse-and-keyboard controls.

IBM offers its developers a technical reference too, but it mainly concentrates on describing the entry points for the ROM routines. It is up to the developers to proceed from there, building their own assembly language codes for calling the operating system and their own user interfaces.

Naturally there is very little consistency among PC programs, which is one of the reasons they are so hard to learn. Even when applications are written in the same development language, the ways users employ those applications may be very different.

To make matters worse, a developer who is porting a program from the IBM world to Mac leaves a fairly minimal operating system, with little memory management and a small ROM BIOS, to encounter the Macintosh's tricky, event-driven operating system and its very robust ROM. It is a whole different world, one in which some PC programmers feel like strangers in a strange land.

The Macintosh offers an easy learning curve to the casual user, but the hidden price for that is a steep, slippery learning curve for the programmer. It is tempting to use PC solutions in the Macintosh environment. Many of them work but not very well.

Still, some developers have been able to make the transition. There is a big difference between early developers who were quick-cloning programs and the more responsible ones who have been creating "serious" Macintosh versions of PC programs. Adapting a PC program to the Macintosh user interface is ever harder, as Lotus' Hertz points out.

"It's harder," says Hertz, "because Macintosh users tend to be more demanding. In developing Jazz, we didn't transfer any of the code from Lotus 1-2-3. What we brought over was the fundamental design — how spreadsheets are put together. That's why Jazz took so long, because we realized early on that doing a port was not the thing to do. We had to do an original Macintosh product."

"Part of the difficulty depends on whether the product is written in a high-level language or not," says Borland's Intersimone.

"The original PC Turbo Pascal, for example, was all written in 8086 assembly language, so the Mac Turbo had to be recoded in 68000 assembly language code. It was a lot easier to do because the 68000 architecture is much nicer than the PC's 8086. And it has a big, big memory," he says.

Still, if Turbo Pascal had been written in a "portable" language like C, it might have been even easier to move it over. This is why most professional programmers have learned how to write in C or an equivalent.

According to Ashton-Tate's Robert Carr, when Ashton-Tate was developing its forthcoming Mac version of dBase, the top-selling database for the PC, it spent more time on the interface than the engine.

"Because there are more good tools available," Carr says, "you tend to become more ambitious. The Mac marketplace seems to value a good interface much more than IBM PC users. They're more willing to try more features and appreciate them."

Intersimone has a slightly different perspective on the Mac's GUI.

"It took about one-fourth the time to develop Eureka for the Mac than it did originally for the PC," he says. "Much time in PC development is spent on decisions on what the user interface should look like, whereas most of that is predetermined for the Macintosh."

Though that first wave of sleazy, quick-transfer software seems to be behind us, the continuing success of the Macintosh is still luring some developers onto the quick-and-easy road to market. How can end users and corporate software acquisition directors distinguish port-o-clones from full-powered Macintosh applications?

"By the way it looks," says Hertz. "It should be faithful to the Macintosh interface. Another thing the user can look for is file compatibility. Where Jazz could only read 1-2-3 files, (the soon-to-be-released) Galaxy can write them as well. That's a result of our realization of today's multivendor environment. Many of our corporate customers have Macs and PCs side by side. Technologically it's not too hard to exchange data between machines, but the move to include that capability in Galaxy was market-driven."

Living Videotext's Winer says: "A program with an underlying technology, like a database, can port across more easily. But today with translation resources like TOPS and AppleShare businesses can use these networks rather than needing a clone program to run in both operating systems."

Looking into the near future, Carr sees more programs moving the other way, from Macintosh to PC.

"Microsoft's Windows is very Mac-like and is event-driven, like the Mac itself," Carr says.

"And if you're going from a non-event-driven architecture (like the PC) to the Macintosh, then you have to become event-driven. It's quite a major change. I think we'll see more and more programs designed so that they can be 'ported' from Mac to PC via Windows. Aldus' PageMaker is in the forefront of that move." ■

LAX JANSEN

Back-door Macs

Corporate buyers find ways to circumvent the IBM standard

BY AVERY JENKINS
Special to MacWEEK

The Macintosh is gaining acceptance, though sometimes grudgingly, in corporate America.

This three-piece world, which comprises the bulk of the microcomputer market, has been dominated by IBM for decades, predicated on the success of IBM's mainframes. Today, most corporations have selected IBM PCs and compatibles as the microcomputers of choice.

But despite the blue color of the corporate landscape, the Mac is finding an ever-larger niche in large organizations. In some ways, the growing Mac market share has been a replay of how microcomputers themselves first made their way into the corporate world. Skepticism for the new "toy" is followed by trial use on a small scale, then more widespread acceptance, and, finally, incorporation into the MIS-approved computer establishment.

On the plus side, teaching computer novices how to use the Mac is easier than teaching them to use IBM PCs, a factor cited by several Fortune 500 companies that have installed Macintosh computers in an attempt to beat the notoriously long and steep IBM learning curve. Also, the Mac still provides much better graphics than is available, even at much greater cost, on the IBM PC and its compatibles.

Still, the Mac is not easy to introduce or support at a large company, as recent interviews at Owens-Corning, Westinghouse and GTE have shown.

All 14 office employees in Owens-Corning's engineering department are now equipped with Macintosh machines, says Bill Corbin, a systems engineer at Owens-Corning's plant in Huntington, Pa. "But," he also says, "we had a real struggle getting Macs into the company."

Corbin became enamored with the Macintosh after borrowing one from a local dealer. He discovered it was not only easy to learn to use but also had the capabilities necessary for the applications he had in mind. The engineering group at the Huntington plant is responsible for supporting the entire fiber glass manufacturing process by managing maintenance, quality control, and research and development.

Unfortunately, there was one big hitch: Company policy required an MS-DOS machine even though the office's two PCs were not being used because MIS did not have time to train new users.

Corbin's first Macintoshes were slipped into the department budget as a line item labeled "computer support." By the time MIS found out exactly what the "support" was, the purchases had already been made.

Corbin's real leverage, however, was the training issue. "Using Macs allowed us to get our people up to speed very quickly," he says. "Furthermore, MIS lacked the personnel to support additional PCs, so the idea of a self-supporting departmental group was appealing."

One of the reasons commonly given for a centralized computing standard is the need for microcomputers to communicate with one another or with host systems. Corbin disagrees. The concept of centralized computing on the plant level, on which MIS is based, "just doesn't work very well," he says.

Bill Corbin demonstrates one method of slipping Macs into the corporate setting. Another method, used by Corbin to sneak Macs into his Owens-Corning engineering budget, is as a line item labeled "computer support."

PAUL THOMPSON

According to Corbin, the engineering department's applications require the ability to transfer data from application to application rather than machine to machine, making a departmental-level standard perfectly adequate.

Even without the ability to upload data automatically from the plant's process controllers — a function the PCs could not really handle either — the Macintosh proved to be cost effective, Corbin says.

One might think that MIS would view the use of the Mac in Huntington as a success story, but Corbin says that is not the case. As a matter of fact, he says, "They don't want to see the Mac spread to other plants."

At GTE's Government Systems Strategic System Division, the growth in the use of the Macintosh apparently poses less concern. Government Systems has acquired 174 Macintosh models, according to Lynne Keating, the Apple support coordinator.

Keating's job developed out of the publication department's need for desktop-publishing facilities to use with three Digital Equipment Corp. minicomputers and typesetting equipment. And though the Macintosh has spread throughout the company, Keating has remained in the publications department.

However, she meets every week with other members of the Integrated Computing Resources Committee, which includes support specialists, user representatives and a representative from MIS. Five years ago, this committee decided MS-DOS machines were the best choice for the financial department. However, it allowed other types of machines to be chosen for other applications.

John Koot, in the division's procurement department, says he believes the company's open policy is partly because "GTE came later to the notion of putting in personal computers." By the time a policy was in place, he says, "Apple had already attracted people. It wasn't as if anybody forced the computers on us."

Koot and Keating say many of the Macs are connected to the DEC computers that provide the backbone office automation hardware. In some cases, database information is both down- and uploaded; for other uses, the Mac is linked simply to send and receive E-mail. To keep track of use, Koot uses a program that requires users to log onto the Mac and that records the time spent on each application. This, he says, is necessary to justify buying more Macs.

To some Mac-phobic companies, equipping the in-house microcomputer specialists with Macintoshes might be a little like having the fox guarding the chicken coop. But to Paul Thompson, a Westinghouse internal microcomputer consultant whose entire department is equipped with Macs, it makes perfect sense.

"We use Macs because we're internal consultants," Thompson says. A lot of his staff works on preparing presentations, diagrams, schematics and reports. The Macintosh has the graphics features his staff requires.

According to Thompson, the only written guidelines directing microcomputer purchases at Westinghouse were developed in the late '70s, prior to the release of the IBM PC.

In the early 1980s, he says, the PC took over "a little bit," to the point where there was an unwritten guideline that favored the IBM PC unless there was a specific reason for choosing non-IBM. Still, the Macintosh has proliferated throughout the company, particularly where its graphics capabilities are desired for publications, presentations and CAD.

The company is evenhanded in its support of microcomputers, Thompson says. For example, Westinghouse's productivity center is equipped with 20 Macintoshes for introducing new users to the machine.

That evenhandedness is evidenced best by the fact that the people responsible for assisting departments in making *their* computing decisions are themselves using … Apples. ■

Laser-printer prices are going down

PostScript emulators likely to spur further decline

BY STEPHEN CUMMINGS
Special To MacWEEK

Laser-printer prices are dropping steadily in all sectors of the market, including prices of Macintosh-compatible printers equipped with Adobe Systems Inc.'s PostScript page-description language.

At the same time, competing page-description languages that emulate PostScript may cause further slashing of already-falling PostScript printer prices.

Phoenix Technologies, known for its imitation of the PC ROM BIOS, was rumored to have shown a PostScript clone to insiders at the recent COMDEX conference. Other firms now developing PostScript emulation products include Control-C Software of Portland, Ore., and Barry & Associates of Mountain View, Calif. Officials at these firms say the new languages will provide full compatibility with PostScript but will be licensed to printer manufacturers for lower fees than those charged by Adobe for PostScript licenses.

> "In the laser market, the trend toward price reductions is strongest right now in the PostScript printers," says John Gully of QMS.

While the list prices of Apple's laser printers, the LaserWriter and the LaserWriter Plus, have remained at $4,999 and $5,799, respectively, other PostScript printers have decreased substantially in price over the past year. Product introductions at the spring COMDEX show in Atlanta in early June indicate prices are continuing to decline.

"In the laser market, the trend toward price reductions is strongest right now in the PostScript printers," says John Gully, director of marketing at QMS Inc., a Mobile, Ala., manufacturer of laser printers.

QMS' line of printers provides examples of that trend, Gully says. The company's first PostScript-equipped laser printer, the PS-800+, was introduced "at about $6,800, but over the past nine to 10 months we've reduced the price more than a thousand dollars," Gully says The PS 800+ now carries a retail list price of $5,495, he says.

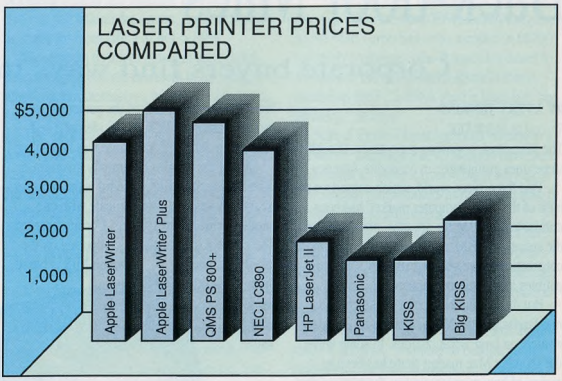
At COMDEX, QMS introduced another PostScript printer, the PS 800 II. Although it lists at $6,495, the new unit has more sophisticated paper-handling capabilities, faster processing speed and a more rugged laser engine than the PS 800+, Gully says. Both QMS units come with 35 resident fonts and include more memory than the Apple LaserWriter Plus, he says.

Also announced at COMDEX was a yet-unnamed PostScript-compatible printer from Quadram of Norcross, Ga. According to a Quadram spokeswoman, the machine will be available in the fourth quarter and will be priced under $5,000.

One of the least expensive PostScript printers now available, the $4,795 NEC LC890, is not truly a laser printer. Instead of the semiconductor laser and moving polygonal mirror found in a conventional laser-printer engine, the NEC printer uses an array of tiny LEDs to produce a resolution of 300 dots per inch on the printed page, the standard for competing laser printers.

Because the fixed LED array is a less complicated mechanism, it is less expensive to manufacture, according to Don Hows, an NEC product manager. And while the Canon laser engine found in many popular laser printers requires an $800 overhaul after 100,000 copies, the NEC unit needs only a $90 developer cartridge. Other features of the NEC PostScript printer include 3 Mbytes of RAM and 35 resident fonts, he says.

Although laser printers that do not include PostScript are of limited value to most Mac users, their prices also are continuing to slide.



To date, the best-selling line of laser printers has been Hewlett-Packard's LaserJet family. First introduced in May 1984 at $3,495, the price of the original LaserJet had dropped to $2,995 by August 1985. In March of this year, both the original LaserJet and a newer model, the LaserJet+, were replaced by the $2,495 LaserJet Series II.

In addition to its lower price, the new unit is lighter than its predecessors, offers additional memory and features, and includes a slot designed to accept add-in boards, according to the company's public relations specialist, Lavon Collins.

Hewlett-Packard is working with a third-party vendor to develop a PostScript controller board that will fit into the slot, Collins says, though she declined to identify the company involved.

Among several new low-cost laser printers introduced at COMDEX, one notable entry is Panasonic Industrial Co.'s Laser Partner. The unit, which will cost $1,999, prints 11 pages per minute compared with eight pages per minute for most other laser printers, says Ron Tomczyk, manager of public relations for the Secaucus, N.J., firm. In addition, the Laser Partner is based on a heavy-duty engine that provides a 5,000-page-per-month duty cycle, while many other popular laser printers are designed to produce only 2,500-3,000 pages per month, Tomczyk says.

The Laser Partner will be available in the third quarter. Although Panasonic has not announced a PostScript version of the printer, Tomczyk said, "We're looking into it very seriously, and we expect to have a PostScript-compatible model within six months."

Despite the low prices of the non-PostScript laser printers, their incompatibility with Macintosh applications makes most of them inadequate for Mac users. However, a software driver introduced at COMDEX by The Laser Connection, a QMS subsidiary, allows the firm's $1,995 KISS and $2,995 Big KISS non-PostScript laser printers to reproduce Macintosh fonts and graphics at the printers' full 300-dots-per-inch resolution, according to a QMS spokesman.

The spokesman says the $495 MacKISS driver is compatible with all Macintosh applications and produces output quality equivalent to that of a PostScript printer under most conditions. He says, however, that users will experience some degradation in the quality of text if non-standard font sizes are used. ■

Mac II purchase rumor still hot at Boeing

BY JIM BEAVER
MacWeek Staff

SEATTLE — Boeing Co. has been busily hosing down a fiery rumor about a reported purchase of up to 10,000 Macintosh II computers. But hot spots were still breaking out last week.

According to company spokeswoman Maureen Herward, the Washington-based aerospace company "is not in the final stages of signing a major agreement to purchase large quantities of Apple computers."

How about a minor agreement to purchase medium quantities?

"We stand by our statement," says Herward.

The alleged contract was reported in a trade journal and cited "sources close to the negotiations."

The deal is "imminent," according to the report and would be worth "between $20 million and $40 million."

One analyst says rumors of a pending large deal between Apple Computer Inc. and Boeing have been floating around financial markets for a week or two.

But Herward says the rumors are "totally inaccurate."

Boeing, a long-time Apple customer, was a test site for early models of the Mac II.

Apple neither confirmed nor denied that a contract was in the offing. ■

Apple sued for allegedly backing out of flat-screen deal

REDWOOD CITY, Calif. — Apple might already have a laptop computer on the market if it had not reneged on a 1985 deal to develop a flat screen, according to a small Redwood City, Calif., company that is suing Apple Computer Inc. for $1 billion.

Woodside Design Associates' suit, filed with the San Mateo County Superior Court, alleges that Apple withdrew from a $10 million contract for the development and manufacture of a flat screen for a laptop computer. Woodside also claims that Apple promised to purchase the company and rename it Apple Labs.

Apple calls the suit "entirely without foundation" and plans to file a reply soon.

The company claims Apple founder Steve Jobs made oral and written commitments to the screen development project and that Apple advanced the company $250,000.

Woodside President Steve Kitchen says he promised to deliver a 640-by-480 pixel, full-color, flat screen for as little as $25 to $30 once the screen was in mass production. The company's internal plans called for a flat Macintosh, called FlatMac, to have been marketed this year, he says. The screen, now used by military contractors for displays in aircraft cockpits, is built with vacuum fluorescent technology similar to a regular CRT.

Woodside claims Apple senior management initially approved both the development of the screen and the purchase of his company but reneged in a power struggle that ousted Jobs. ■

Apple dealers upgrade outbound sales

BY RICHARD HALSTEAD
Special to MacWEEK

CUPERTINO, Calif. — Apple dealerships around the country are adding outbound sales staff, upgrading the technical abilities of in-store personnel and sponsoring special marketing events in an effort to better penetrate the business market for Apple products.

"You've got to keep in mind that 80 percent to 90 percent of their (dealers') revenues are now coming from outbound sales," says Patrick Kearney, Apple Computer Inc.'s dealer operations manager. Today's dealer uses his store as a base of operations, Kearney says. After prospective clients are located by telemarketing or direct mailings, sales representatives leave the store floor to make direct contact, he says.

To qualify as a Mac II dealer, Apple requires retailers to have at least two outbound sales people.

John Kovalsik, a partial owner of a chain of six computer retail outlets called Computerware in Pennsylvania , says his sales operation has grown so large that an off-site sales office had to be opened.

Although the sales office is necessary, Kovalsik says Apple and other venders frown on dealers demonstrating products away from authorized store premises. Nevertheless, he says Computerware and other large chains on the East Coast do so anyway. "It's really a gray issue," Kovalsik says. "They (Apple) haven't forbidden it."

For the most part, however, Apple and its dealers have been working with the synchronization of a crack drill team in expanding the business market for the Macintosh.

Apple is currently sponsoring 16 regional business forums around the country. Dealerships pay a fee, which does not fully cover the cost of producing the forums, to participate. Besides footing the extra costs, Apple assumes responsibility for organizing and advertising the events. "It's a real good place to see a variety of solutions in a professional setting," says Laurie Harden, Apple product manager for the Businessland Inc. computer chain.

Apple also is expanding its business development program, which includes a special fund that can be tapped for marketing purposes and 12 regional business development managers (BDMs) who orchestrate the efforts of Apple's sales representatives.

Kearney says the number of BDMs is being increased to 22 positions, allowing district rather than regional supervision.

Use of the marketing fund also is being liberalized to allow reimbursement to dealers for telemarketing, demonstration models and outside consultants.

And, at the same time, Apple is continuing to offer a wide range of training programs designed to improve both the technical proficiency of dealer personnel and their sales skills. Kearney says the company's Apple Opportunity Knocks (AOK) sales class has been well received.

"I would say that the one thing that Apple does better than other vendors is training," says Terry Maxie, the internal business development employee of CompuRite, a four-store chain in the Houston area. CompuRite, which has six outbound sales people, took advantage of the AOK program.

The cost of many Apple classes can be deducted from AppleFund, Apple's joint market development/co-op advertising fund.

Even large chains like Businessland take advantage of the training programs, sending their in-house instructors to Apple classes so they can pass on the information, Kearney says.

"The really unique thing about Apple is that it really listens to what people need and is flexible with its response," says Businessland's Harden.

Dave Schneider, an Apple BDM supervising the New York/Philadelphia area, says he often accompanies dealer sales representatives on sales calls.

"It shows customers that the dealer has access to Apple and that Apple really wants to get involved," he says.

Schneider, who previously worked with both IBM and Remington-Rand, also uses his 17 years of sales experience to assist dealers in designing long-range business plans.

Terry Crane, an Apple BDM based in Dallas, says dealers in her area have recently secured accounts with major corporations such as American Airlines, Southland Corp. and Fidelity Investments. She recently helped a Mr. Micro franchise in Dallas sponsor a briefing for 200 top business executives at Infomart.

Smaller in-store business seminars occur regularly at Apple dealerships around the country, Crane says.

Apple provides dealers with a book of ideas for using AppleFund to further penetrate the business market and expand their market share. Some of the more imaginative ideas include:

- Apple On Wall Street, a three-month stock portfolio building contest with an Apple computer as grand prize. Objective: Increase sales of hardware solutions to the upper income professional market.
- Women in Business Open House, an informal open house designed to dispel "computerphobia." Objective: Increase sales penetration of this growing market segment.
- Free Business Lunch, a four-week program of once-a-week, one-hour lunchtime sessions. Objective: Provide hands-on experience to the general business public.
- Company Purchase Plan, an ongoing, preferred-customer program that permits employees of valued business accounts to make individual purchases at special rates. Objective: Convert computer-literate employees of valued business customers into Apple buyers.

Until recently, Apple's main success in the business market was from the Macintosh's use as a desktop-publishing system. But with the introduction of the Mac II, most dealers expect that to change.

"No question about it," Maxie says. He says he has already sold his first two Mac IIs to large businesses at full price and he expects to need to add more outbound personnel to market the new machine properly. ■

High-tech consultants fighting tax law

BY RUSTY WESTON
Special to MacWEEK

SAN FRANCISCO — Businesses wanting to hire Macintosh consultants have a common opponent: Sen. Patrick Moynihan of New York, the sponsor of a now-infamous special-interest "anti-consultant" tax legislation known as section 1706 of the Tax Reform Act of 1986.

But at the recent 10th annual national conference of the Independent Computer Consultants Association (ICCA) held here, the Democratic senator chose not to face his "victims."

Moynihan's promises of amending or repealing the controversial tax code, which removed the "safe-harbor" protection previously given to high-tech consultants to keep the Internal Revenue Service from classifying them as employees for tax purposes, were made on a three-and-a-half-minute videotape.

"It's hurting consultants," says ICCA President Joseph Scordato. He says the tax measure has chilled Fortune 500 companies, which increasingly have backed off from hiring independent consultants in the belief they would run afoul of the IRS.

About 4 million high-tech consultants, engineers and draftsman have been subject to section 1706, according to ICCA figures.

A study at the conference said the average wage loss for consultants is $15,700 so far this year; the loss is attributed to unrenewed contracts. Up to a $35,000 loss was reported.

"Until this thing hit, the industry was going great guns," says Jack Christensen, ICCA executive director.

Christensen says the ICCA has just launched a new marketing survey of its members to gauge the future for consultants.

The worst thing about the measure, according to Scordato, was that independents were forced to become somebody's employee to earn a living, eliminating the alternative of hiring an independent who might, for example, bring a fresh approach to solving a systems problem.

ICCA leaders and members admit the measure caught them napping. ICCA membership jumped 30 percent after the measure passed, to 2,300 member firms and 6,000 independent consultants.

The St. Louis-based organization hired a public relations firm and a legislative lobbyist to organize a counterattack. ICCA lobbyist Guy Scharf said the measure had been supported by the National Technical Services Association (NTSA), a group representing companies that employ their own technical staffs and compete with independent contractors.

The NTSA apparently convinced Moynihan that the "safe-harbor" protection was causing "competitive unfairness" in the industry because it was not available to everyone, says Joe Gale, Moynihan's legislative counsel.

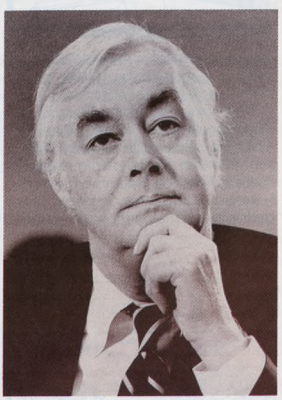
Gale says the intent of the measure has failed because it is misunderstood. "The provision doesn't say everyone has to be an employee; the common law standards apply."

At Moynihan's request, the IRS released a clarification of section 1706 May 21 that expands on the 20 criteria used to establish self-employed status.

Scharf says he believes the tax measure "damages the industry. It effectively prevents a small consulting firm from subcontracting part of its work to others, a standard industry practice by which a small consulting firm begins to grow into a larger one."

Sen. Alphonse D'Amato, R-N.Y., and Sen. David Durenberger, R-Minn., sponsors of two bills aimed at repealing or postponing section 1706, spoke to the consultants by conference call. Durenberger said he expects Sen. Lloyd Bentsen, D-Texas, chairman of the Senate Finance Committee to hold hearings on the section 1706 sometime this summer.

Meanwhile, the ICCA is educating members on how to analyze a contract to see if it meets common-law tests of independent-contractor status. ■



U.S. Sen. Patrick Moynihan

CMS moves to Delaware; increases share value 7-to-1

TUSTIN, Calif. — Mass storage and peripherals manufacturer CMS Enhancements Inc. recently reincorporated in Delaware and reduced its outstanding shares on a 7-to-1 basis in a decision overwhelmingly approved by shareholders.

The move highlights the company's efforts to increase stock market interest in the company, according to a CMS spokesman. He also says CMS intends to target the Apple Computer marketplace more aggressively.

Because individual shares will increase from about $1.20 per share to $7 per share, CMS will now be listed on NASDAQ.

CMS also hopes to attract new outside directors to its board since Delaware's laws limit the business liability of board members.

"You will find that a very high percentage of companies are incorporated in Delaware," says the representative, alluding to these laws.

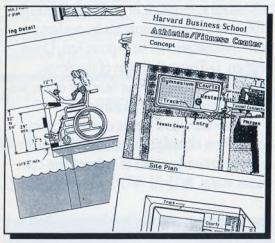
The company will continue to be based in Tustin, Calif. ■

ARCHITECTURE DESIGN PROCESS AIDED BY MAC

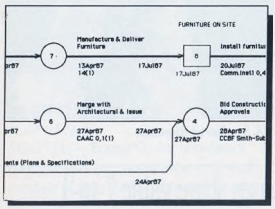
BY STUART SILVERSTONE
Special to MacWEEK

Building professionals attracted to the unique graphics and interface features of the Macintos CAD packages to support the many varied tasks of creating environments. This involves visu

Doing business for building design professionals includes the creation of literature — to obtain commissions, and to prepare reports and other documents — and timely, efficient operation of a large team of experts.

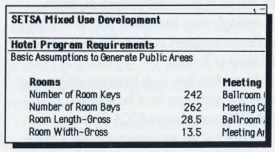


Desktop publishing is a powerful tool in the hands of a design professional dealing in visual information. Applications range from (l. to r.) an award-winning MacPaint and ImageWriter planning handbook on accessible fishing by Albuquerque, N.M., architect Richard Nordhaus, a MacDraw and ImageWriter proposal by Boston architect Gary Graham, and a PageMaker and LaserWriter user interview brochure by San Diego architect Creighton Nolte.



Project management can be monitored visually with simple charts created in MacDraw or with special-purpose software — such as MacProject or, as in this task schedule, created with MicroPlanner. These timelines are used for presentation and discussion as well as for frequent monitoring of a project throughout its life cycle.

Conceptualizing a planned physical environment involves the study of many abstract relationships before and while drawing actual shapes and sizes of building parts.

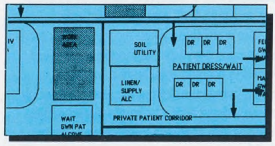


SETSA Mixed Use Development

Hotel Program Requirements
Basic Assumptions to Generate Public Areas

Rooms		Meeting
Number of Room Keys	242	Ballroom
Number of Room Bays	262	Meeting C
Room Length-Gross	28.5	Ballroom
Room Width-Gross	13.5	Meeting A

Spreadsheets in Excel allowed Cambridge Seven architect Peter Kuttner to calculate spatial requirements for a 250-room hotel, using C7's "general hotel template that incorporates many of the lodging industry's 'rules of thumb' and generates a fairly detailed program with just a little client information."

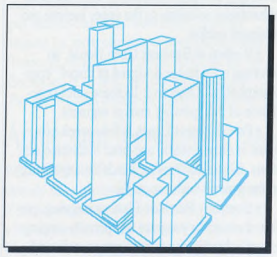


Diagramming spatial relationships in MacDraft allowed Greensboro, N.C., architect Harvey Cohen to study and communicate design options before they were developed into specific building plans and to reach consensus at a meeting among the competing constituents of a hospital — where "many were using the mouse to show graphically what they mean."

Site analysis involves studying sun, wind, drainage, views and approaches to locate and orient functions on a sculpted terrain — displayed as a three-dimensional model in Schema by its developer, Harvard architecture Professor Mark Van Norman.

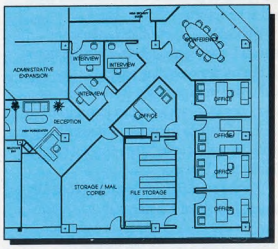
Visualizing early physical ideas and relationships, without having to think in terms of or commit to specific floor plans, allows architects to externalize and develop a multitude of potential solutions.

Sketching electronically with freehand, ambiguous, 'soft pencil' lines — akin to napkin or tracing paper doodling — taps the creative imagination of a designer. Tulsa, Okla., architect Allan Williams developed the tool Sketch-to-Scale for such MacPaint drawings.

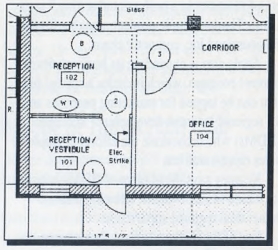


Massing studies allow the creation of shapes for buildings or whole complexes "in the three-dimensional space in which they will be built and experienced," according to Los Angeles architect Jack Green, one of the developers of NewStudio and producer of this mockup. Its users test out ideas by sculpting and manipulating "design primitives" of rectangle, ellipse, line, polygon, and arc, either as volumes of revolution or as prismatic volume extrusions.

Drafting floor plans, elevations, sections and details is the primary activity — and the principal visual language — of the building design process, from earliest preliminary planning decisions to final, detailed, dimensioned construction plans.



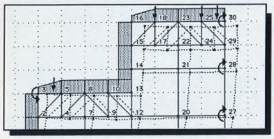
Preliminary plans — such as this MiniCAD drawing by Austin, Texas, architect Robert Anderson for an office building — begin as merely suggestive of possibilities but need to be created with a flexible tool that can handle more specificity as the design evolves.



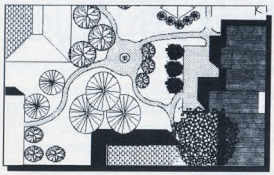
Working drawings are the final version of dimensioned instructions for locating walls, beams, pipes, wires, furniture and outdoor vegetation — each of which might be superimposed from a separate drawing layer sometimes created by professionals from different disciplines. This MacDraft and ImageWriter remodelling plan is by Gary, Ind., architect Horace Cantrell.

have been using basic software — often since the machine's introduction — and more recent
alizing and manipulating options in a variety of graphics languages.

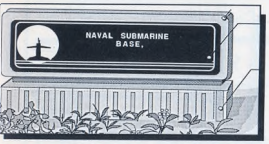
Allied professions require varied analyses of a proposed project — whether performed in-house by the architect or by consultants.



Structural analysis is used at many stages in the design process, from testing the feasibility of a rough concept to calculating the exact sizes of floor beams. FrameMac diagrams like this visually display a structure's behavior from given loading conditions.

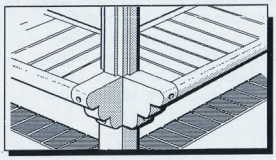


Landscape design drawings can be created on standard CAD tools — as in this MacDraw student church project from the University of Missouri-Columbia. Future special-purpose tools could offer extensive clip art and such calculations as energy impact and earth fill.

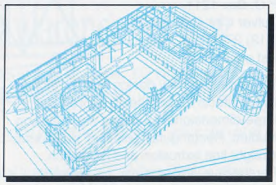


Graphics signage, where architects need to design environmental elements for labeling uses and directing pedestrians, is a natural application for the Mac's refined typography and power tools such as Fontagrapher. This study by San Diego landscape architect Michael Singleton was produced in two colors on the LaserWriter by using blue toner — to match the sign's color — on a second printing.

Construction drawings require a large time investment in visualizing, drafting, and revising assemblies.



Detailed views show, in cross section, exactly how elements are related and materials joined. San Diego landscape architect Niles Nordquist finds that this innovative perspective view "better explains assemblies, in fewer drawings, using the Mac's shading capabilities."



Building systems include complex juxtapositions of structural and mechanical elements that can be better visualized in a three-dimensional view such as this Schema modeling of a school building by architect Alexander Chan.

Renovations normally require the drawing of intricate existing structures. In this time-saving, innovative Mac application, Torrance, Calif., architect Barry Isakson digitized, with ThunderScan, a photo of the facade to be redeveloped, for labeling of construction procedures in MacDraw.

Supporting documents for construction contain numeric and text information that requires special-purpose software to produce it and to relate it to building elements.

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PART 3    EXECUTION

3.01      INSPECTION

    A.    Verify stockpiled fill to be reused is approved

    B.    Verify foundation perimeter drainage installati
          inspected.

    C.    Verify areas to be backfilled are free of debri
          ice, or water, and surfaces are not frozen.

3.02      PREPARATION

    A.    Identify required lines, levels, contours, and
```

Specifications are detailed text descriptions of building materials and finishes that benefit from a technical-document word processor — such as MacSpec — and an electronic version of the standard AIA specification library — available for the Mac as MasterSpec.

PROJECT COST SUMMARY
Area of 20,000 SF @ $15.00 /SF = Total Allowance of $ 300,000

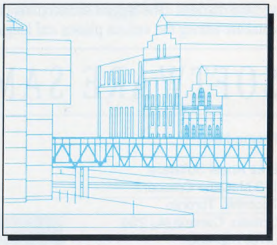
01-16 CONSTRUCTION COST	ACTUAL			STD	DIFF
	$	%	$/SF	$	$
DIVISIONS 02-16					
06 Wood & Plastics	2,000	0.7	0.10	0	2,000
08 Doors & Windows	18,456	6.2	0.92	12,732	5,724
09 Finishes	134,455	44.8	6.72	124,854	9,601
12 Furnishings	10,020	3.3	0.50	10,430	-410
15 Mechanical	29,305	9.8	1.47	36,200	-6,895
16 Electrical	39,539	13.2	1.98	42,862	-3,323
Subtotal Divisions 02-16	233,755	78.0	11.69	227,078	6,677
Contingency of 5%	11,688	3.9	0.58	0	11,688
SUBTOTAL w/ Contingency	245,443	81.9	12.27	227,078	18,365
01: GENERAL CONDITIONS	$	%	$/SF	$	$
Permit of 1%	2,454	0.8	0.12	2,271	184
General Conditions of 6%	14,674	5.0	0.74	13,761	1,113

Cost estimates, in electronic form, are useful from the earliest stages of design to ensure completing a project within budget. Display forms and spreadsheets are available in standard Mac tools or can be customized, as in these Excel templates developed by Torrance, Calif., architect Barry Isakson.

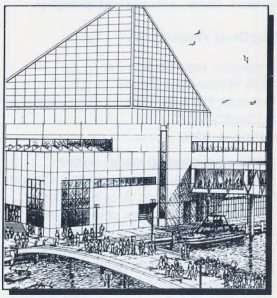
ITEM				ACTUAL Quantity				BUILDI Flowsp
CSI #	Description	Price	Unit	#	$	%	$/SF	FOOTS
6000	WOOD & PLASTICS				2,600	1.8	0.93	
6400	Base CAB.PLAM top	150.00	LF	10	1,500	1.1	0.54	
	Upper CAB	100.00	LF	10	1,000	0.7	0.36	
		10.00		10	100	0.1	0.04	
Subtotal 6000 Wood & Plastics					2,600	1.8	0.93	
8000	DOORS & WINDOWS				21,216	15.1	7.58	
8250	DR.STD.INT.latch	212.50	EA	10	2,125	1.5	0.76	3.0
	DR.STD.INT.lock	225.00	EA	10	2,250	1.6	0.80	
	Suite Entrance	294.50	EA	10	2,945	2.1	1.05	1.0
	Relocate Door	125.00	EA	10	1,250	0.9	0.45	
		1234.00		10	12,340	8.8	4.41	
		10.00		10	100	0.1	0.04	

Material takeoffs are a time-consuming manual operation, perfectly suited to computer calculation — or final designs and for the changes that commonly occur throughout a project. This Excel template also was developed by Isakson for the Neil, Stanton, Palmer firm's Corporate Interiors Group.

Pictorial views of a proposed environment are crucial to predicting the building's appearance in its surroundings and the human spatial experience for its users — with movement and changes in lighting.



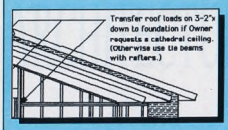
Perspective images are easy to construct electronically, offering great time savings to professionals who would thus be encouraged to view proposals from many different angles. This MacPerspective drawing by Baltimore architect Isao Oishi shows an addition to that city's aquarium.



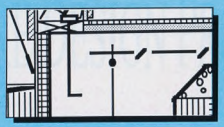
Renderings are important marketing tools for showing life-like views of a project to a client for approvals or to potential tenants. Baltimore architect Isao Oishi traced a MacPerspective plot to create this hand-drawn illustration of an aquarium addition, to which he later added color enhancements.

Output Options

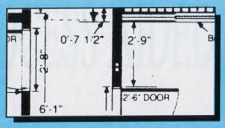
The traditional large drawing sheet sizes associated with building plans—up to 30 by 40 inches or larger—raise questions in the minds of architects about devices available for producing drawings with personal computer-based drafting systems. Considerations include cost, speed, convenience, typography quality, and fill patterns available. Small firms often use an inexpensive dot-matrix printer or rely on the sophisticated equipment of a service bureau, where drawings would be sent, anyway, for conversion to transparencies and printing. Some architects are even reconsidering the need for large drawings.



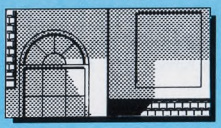
ImageWriter strips are the choice of Boston architect Bill Bunting — providing high speed, low cost, and dot-matrix resolution—with two 15-inch-wide carriage sheets invisibly spliced into large prints for copying onto transparencies.



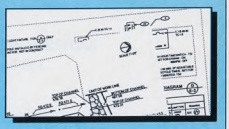
LaserWriter tiles are the work of Nevada City, Calif., architect Gregory Wolters — providing high-speed, quality typography and fill patterns and high resolution — requiring time and trouble for assembly before printing transparencies.



Linotronic typesetter output is the choice of Boston architect Tim Johnson, providing high-resolution, 8-and-a-half-by-11 sheets that can be enlarged 200 to 400 percent onto transparencies while still holding a fine ink-like line.



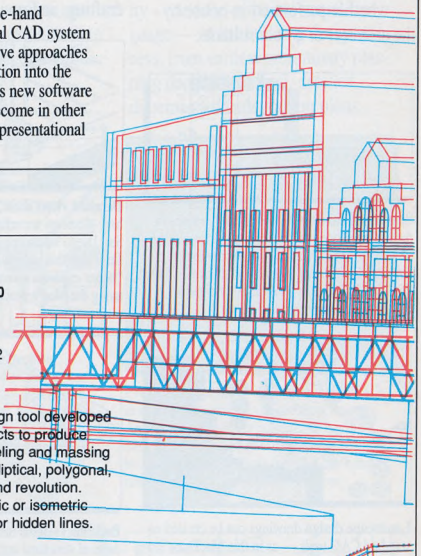
Pen plotter output is the choice of Fernandina, Fla., architect Robert White — providing ink-line resolution, large transparency sheets, mechanical lettering and cross-hatch fill patterns — using MacPlots software.



Letter-size sheets are the work of San Diego landscape architect Niles Nordquist — providing LaserWriter advantages — with sets of plans and details for small-size projects, "which are easier for contractors to handle on the building site."

Future Trends

The Macintosh has developed a loyal following of architects who have the intuitive and graphic orientation and the eye-hand coordination essential for physical design but lack computing power and CAD software tools. It has brought a practical CAD system within the reach of small practices for as little as $2,000. Newly emerging CAD tools for the Mac, some with innovative approaches tapping the Mac's uniqueness, some transferred from mainframe or MS-DOS systems, are likely to expand its penetration into the environmental design market. Undoubtedly, the Mac II will establish itself as a serious CAD workstation, especially as new software tools emerge that tap its full potential. It could conceivably become the de facto industry standard that the Mac has become in other vertical markets. The biggest shortcoming of available and foreseeable tools is the lack of integration in a common representational database among the various phases and languages of the design process.



SOFTWARE SAMPLER

Frame-MAC

Erez Anzel Software
113 McCabe Crescent
Thornhill, Toronto
Ontario, Canada I4J 2S6
(416) 738-4601
List price: $595

Structural frame analysis, design. Analyzes and helps design two-dimensional frames using any number of nodes, elements, hinges or supports and any combination of loads. Section table on disk. Frame drawn with mouse. Diagrams include original, final, loading, tension, shear, moment and deflection.

MacDraft Version1.2A

Innovative Data Design Inc.
1975 Willow Pass Rd. #8
Concord, Calif. 94520
(415) 680-6818
List price: $269

Continuous drawing mode. Sixteen scales. Zoom. Auto-dimensioning. Circles by radius or diameter. Arcs by radius or three-points. Distributes objects along line. Rotates objects in one-degree increments. Creates objects by inside or outside diameter. Four documents on-screen simultaneously.

MacPerspective Version 2.0

B. Knick drafting
313 Marlin Olace
Melbourne Beach, Fla. 32951
(305) 727-8071
List price: $179

Three-dimensional wireframe drawing program. Constructs perspective drawings of houses, buildings and other objects that can be viewed from changing perspective points. Views and prints two dimensions and axonometric projections.

MacPlots II

Computer Shoppe
Guilford-Jamestown Road
Greensboro, N.C. 27409
(919) 299-4843
List price: $295

Plotter utility. Enables Macintosh to plot documents from MacDraw or clipboard. Plots chart and MacProject from clipboard or transfers into MacDraw for larger files. Produces continuous one-piece drawings from multi-page drawings.

MASTERSPEC

EPPS Automata
3109 Carlisle Street #103
Dallas, Texas 75204
(214) 871-8871
List price: Short version- $600
Basic version- $900

Disk library of standard AIA specification guide. Includes quarterly updates. Versions of architectural, structural and civil editions available.

MiniCad Version 3.0

Diehl Graphsoft Inc.
Suite 202
8370 Court Ave.
Ellicott City, Md. 21043
(301) 461-9488
List price: $495

Combination two- and three-dimensional CAD system with high-precision database. MacDraw-like two-dimensional system interface. Fifteen layers. Auto-dimensioning. Interfaces with Clipboard, MacDraw and PICT files. Uses standard Macintosh fonts.

NewStudio Version 1.0

NewLine7 Graphics
P.O. Box 1211
Culver City, Calif. 90232
(213) 277-7217
List price: $349

Three-dimensional design tool developed by architects for architects to produce three-dimensional modeling and massing studies. Rectangular, elliptical, polygonal, straight line extrusion and revolution. Perspective, axonometric or isometric projection. Wireframes or hidden lines.

Schema

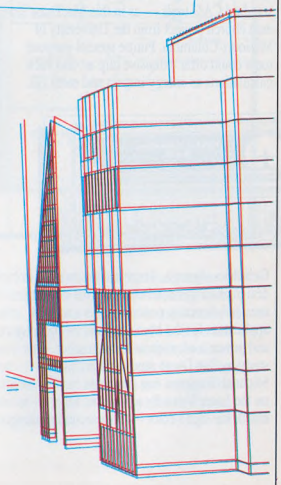
Laboratory for Computer Graphics
Harvard University
48 Quincy Street
Cambridge, Mass. 02138
(mail order only)

Designed for architects and architecture students. Three-dimensional modeling and massing. Wireframe and hidden line perspectives. Objects created by extrusion. No pull-down menus. Present version for Mac Plus and Mac 512K only. New versions with pull-down menus for Mac II, Mac Plus and Mac 512K menus are under development.

Sketch-to-Scale Plus

Williams AG Products
8282 S. Memorial Drive
Ste. 118
Tulsa, Okla. 74133
(918) 252-7477
List price: $74.95

Drafting system with screen overlay templates and symbols library.



Focus: Large-display screens

MacWEEK Staff

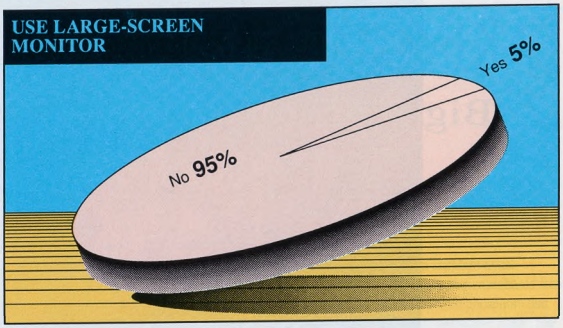
Only 5 percent of large-organization Macintosh users queried by a recent telephone survey have large-display monitors connected to their computers.

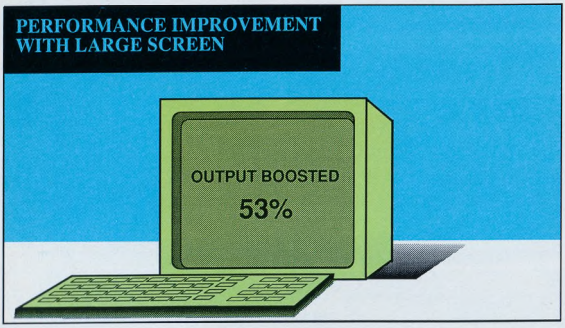
Since 72 percent of the same users profess to use desktop-publishing programs, this finding indicates a significant opportunity for manufacturers of large monitors.

The study, conducted by Creative Strategies Research of Santa Clara, Calif., is based on 301 telephone interviews with corporate and other Macintosh users working in organizations with large numbers of computers.

The low penetration of large-screen monitors into the business market may be because of their high cost and large footprint.

The new Macintosh II, with its detachable monitor and large sturdy box, will make adding a large monitor much easier than with past generations of Macs.





Screens said to boost productivity

Asked by what percentage productivity had increases through the use of large monitors, users say large screens boost their output by 53 percent.

This finding, coupled with the fact that one-third say that large screens boost output by 100 percent, is evidence that the current Macintosh display interferes with productivity. The high usage of such full-page applications as desktop publishing and drawing makes it imperative to maximize screen operating surface.

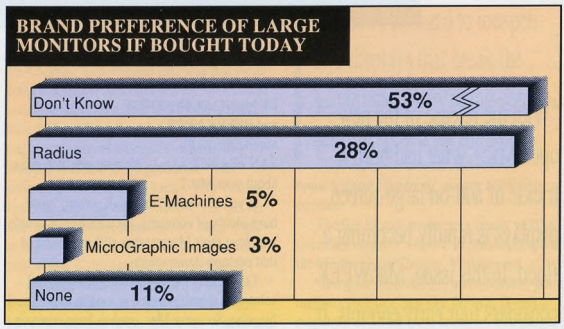
Large-screen brand awareness is low

Among current users, more than half of those surveyed use E-Machines' Big Picture. Asked what brand of monitor they would buy if they were to buy a large screen today, only 37 percent expressed a definite brand preference.

More than half (53 percent) do not know what brand of monitor they prefer, while one out of 10 users would not buy a large monitor at all.

The plan to purchase data shows a dramatic skew toward Radius' Full Page Display, which garnered more than one-quarter (28 percent) of the mentions. E-Machines, the current leader, was second with 5 percent. MicroGraphic Images' MegeScreen, Network Specialties' Big Screen and Apple Computer received the remaining mentions.

This survey is conducted exclusively for MacWEEK by Creative Strategies Research, a high-technology research and consulting firm based in Santa Clara, Calif. For this survey, an n-th sample of U.S. corporate and other volume users were selected from the MacWEEK subscriber database. Respondents were surveyed by telephone during the last week of May. A total of 301 usable reponses were obtained with a projected response rate of 50 percent. The industries and geographical distribution represented in the sampling are reflective of general U.S. demographics.



CALENDAR

JULY

13-14 — Computer Aided Engineering: The Many Faces of CAE (San Francisco)
Intended for CAE users, vendors, investors and product planners, the conference will provide a perspective on the entire CAE industry, including an overview of CAE on workstations in general and the Macintosh. Contact : Yvonne Chism at Frost and Sullivan, (212) 233-1080.

13-17 — **American Association for Artificial Intelligence Show** (Seattle)
Technical sessions on AI research, tutorials on the wide-range of AI applications and exhibition. Sun Microsystems is expected to make several new product announcements. Contact: AAAI in Menlo Park, Calif., (415) 328-3123.

16-17 — **Electronic Publishing: Strategies, Applications and Systems** (Washington)
Seminar and live demonstrations sponsored by Datapro Research Corp and involving systems and approaches to publishing for small to large businesses. Contact: Datapro Research Corp. at (800) 328-2776.

19-21 — **Desktop Publishing: A Practical Tutorial** (San Francisco)
Presented by Digital Consulting Inc., the tutorial will feature product comparisons and practical instruction. Call: San Francisco Airport Marriott Hotel (415) 692-9100.

27-31 — **ACM Siggraph '87** (Anaheim, Calif.)
Exhibition featuring 250 computer graphics companies and their wares. Show also includes a panel session, tutorials and video shows on computer graphics applications. Contact: Ellen Frisbie, (312) 644-6610.

AUGUST

2-4 — **Recognition Technologies Users Association Exposition** (San Francisco)
Exposition on recognition technologies equipment, supplies and services, including telecommunications equipment, optical character recognition and image-processing equipment. Contact: Robert Jakubowicz, (802) 362-4151.

10-14 — **NCGA Computer and Art Design Conference** (Chicago)
Seminars and hands-on presentations for Apple, Macintosh and Omega computers. Conference features graphics applications for the fine arts, including dance, theatre and music. Contact: Toni Grainer, (703) 698-9600.

17-20 — **National Computer Graphics Association CAD/CAM Conference** (Boston)
Exhibit and conference for educators, researchers and vendors involved in of computer graphics. Contact: NCGA, (800) 225-NCGA

Send calendar events to: Clair Whitmer, MacWEEK Calendar, 525 Brannan St., San Francisco, Calif. 94107.

TAKING THE LARGE VIEW

Big-screen monitors let Mac users see more

MARK FARBIN

"With the release of the new open Macs, what had been a trickle of add-on large-screen displays is rapidly becoming a flood. In this issue, MacWEEK considers four early entrants. If one full page is enough for your needs, you can't do better than the elegant Radius Full-Page Display. If you need to see facing pages, we like E-Machines' Big Picture, but MicroGraphic Images' MegaScreen currently offers the widest range of software-selectable options."

BY MICHAEL GOODWIN and HENRY NORR
MacWEEK Staff

SAN FRANCISCO — What do you hate most about your Mac?

If you answered "the small screen," you have plenty of company, because lots of people who love their Macintoshes still cannot stand that postage-stamp screen.

Fortunately there is a solution — several solutions, actually, which is a curse as well as a blessing. So many Mac vendors have come up with so many different kinds of large-screen displays that it is tough to decide which way to go.

While the Mac display is small, it also is crisp, clear and steady. That is where the problems start. Every system for enlarging the screen trades off some of those desirable characteristics; different systems make different trade-offs.

For instance, if you just "blew up" the Mac display, making everything twice the size it is on the built-in screen, the image would be nice and big and, in that sense, easier to see. But you still would not see any more of your page layout or spreadsheet; the same information would be displayed, only magnified. To view more of your document, you would still have to scroll around.

In addition, the dots that make up the picture — called "pixels" or "dots per inch," which in the Mac's case are square — would be twice as big. So curved lines, including the characters that make up your screen fonts, would have a bad case of the jaggies.

To sample this phenomenon in extreme form, use MacPaint's FatBits feature. It simply displays each pixel of the picture at eight times its usual size.

The Mac paints its screen at a density of 72 dots per inch (dpi). Most of the large-screen displays stick pretty close to that standard; they just have more inches. But at that rate, two full facing pages — what desktop publishers and many others want from an add-on monitor — do not fit even on a 19-inch monitor. (Computer monitors, like TVs, are usually measured across the diagonal.) The job would require an even larger monitor, which at this point would mean a much higher price.

One solution is to pack more dots into each inch of screen, say 82 or 85 dpi. That way an image that measures 12 inches across on the Mac ruler can be shown in only 10 or 10.5 inches of screen. And with smaller pixels, curves should look smoother, just as the LaserWriter with its 300 dpi produces much better fonts and graphics than the Macintosh screen with 72 dpi.

But there is a trade-off. Though higher resolution — more pixels — sounds like a good thing, it does not necessarily mean that what you see will look better than on the Mac screen. On the contrary, at higher resolutions monitor makers have to work harder to keep the quality of the display up to Mac standards.

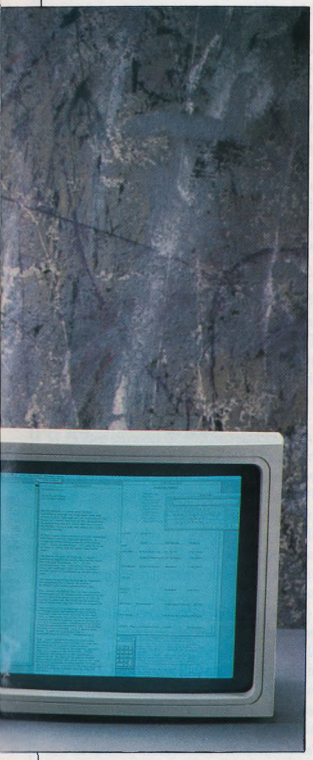
In the Mac system, screen fonts, icons and graphics are all defined in terms of a certain number of pixels. If you increase the resolution by increasing the density — adding more dots per inch — each dot gets proportionately smaller, and so each element of the display also gets smaller.

At extremely high resolution, the letters are so small you might need a magnifying glass to read them. And lines that are only a pixel wide, as in many screen fonts, become so narrow and indistinct that the characters can be hard to read even in a 12-point size.

Other large-screen trade-offs include circles that look like ovals, annoying image flicker, slow screen update or boards that run so hot you need to install a fan to avoid silicon meltdown. Some displays will run only on the SE. Others run on Pluses, 512s, SEs and IIs. Some are tall and narrow; some are fat and low; some are square.

And, needless to say, every company insists its system is the best.

In the accompanying review, MacWEEK offers a close look at the most popular displays, but first we would like to explore some of the



basic issues and introduce you to the major players in the big-screen ball game.

SuperView: Faster than a mainframe

Steve Edelman founded SuperMac Technology in Mountain View, Calif., in 1985. The company made its reputation installing low-cost memory transplants for the Mac. Apple's 512-Kbyte upgrade cost $999, while Edelman did the job for $495.

At that time, the Mac Plus was still a gleam in Steve Jobs' eye, but when Edelman discovered that the only "official" hard disk for the new machine would be a slow serial-port one, he saw an immediate need. With only seven weeks' notice, he whipped up a fast SCSI-port hard disk. And when Apple rolled out the Plus, the DataFrame drive was up on stage with John Sculley. It was the first SCSI drive for the Mac and it sold fast and hard.

By September 1986, Edelman had heard about the forthcoming "slotted" SE and Mac II. He decided to transform SuperMac into a company that "makes your Macintosh solution needs."

He designed a display board for the Mac II, the board that produced the fabulous color graphics Apple used to show off the machine at its unveiling. Out of the same technology came SuperView for the Macintosh SE, a system that includes a card for the SE's slot and a large 19-inch monitor.

The monitor itself comes from a company called Moniterm in Minnetonka, Minn., the same company that supplies the MegaScreen monitors for MicroGraphic Images and many other large-screen displays. But as SuperMac's marketing manager, Thomas P. Rielly, notes, "The monitor is the visible, sexy part of the system, but the magic, the hard part, the real work is done in the display adapter."

Edelman says he hoped at first to offer monitors that would support any of several resolutions, but monitor manufacturers, unaware of the potential of the Mac market, could not provide the hardware required. Forced to choose, Edelman and his techies opted for a display with high resolution as well as large size: 1,365 by 1,024 pixels, almost eight times as many as on the SE and older Macs. "It all goes back to a conversation I had more than a year ago with Paul Brainerd (of Aldus Corp.)," says Edelman. "He said that his PageMaker users really needed a display that would show two pages complete. So that's what we set out to do."

High resolution poses some tough technical problems: heat, speed, power consumption. Engineer Dan Clark explains: "When you're putting out 1,365 by 1,024, you're moving pixels at about nine nanoseconds per pixel, which is a clock rate of 110 MHz. That's faster than an IBM mainframe, well beyond the capability of TTL (transistor-transistor logic) chips. So we went to ECL (emitter-coupled logic) chips. They worked, but they have high power consumption and run very hot."

To overcome the difficulties, Edelman and company went to a different technology: low-power CMOS chips. And they ended up designing several custom chips they claim are the fastest on the market.

But SuperMac has had a hard time getting the SuperView to market. The first version of the controller card had a gross design defect that made it difficult to install the board in the SE. That problem has been corrected, and the card now shipping is no more difficult to install than the other monitor vendors' board.

But other problems remain. The software distributed with the SuperView system is still crude, with none of the options and extras offered by competitors. More seriously, some users have been less than enthusiastic about the quality of the display.

Edelman is no longer sure the company's original decision to offer a screen with the maximum number of pixels possible was the right one.

"For about 25 percent of the market — the Excel jockeys who are just crying to see more cells, the layout people who have to have two full pages — what we've offered is a good solution," he says. But other users, he says, have looked at the tiny text and said, "Thanks for the extra pixels, but no thanks."

In response, SuperMac is changing its approach. Software scheduled for release in a few weeks will give users the option of selecting a "lower resolution": 1,280 by 960 pixels, instead of 1,365 by 1,024. That will mean fewer characters, cells or graphic elements on screen, but those that are displayed should be more readable.

SuperMac intends to go even further in this direction. Crystals being added to the video controller boards will permit a resolution of 1,024 by 808, just like The Big Picture from E-Machines Inc. As soon as manufacturers can supply "multimode" monitors — Edelman says he hopes it will be before the summer is out — SuperMac will be able to give users the choice.

Big Picture: No drilling, no soldering

Back in January 1986 Steve Vollum of E-Machines decided he wanted a large display on his desk. "Our original idea was that we'd build a dozen of them and sell six to subsidize ours," he says. First designed for the slotless Mac 512 and Plus, the original Big Picture was engineered around a large 64-pin clip that snapped over the 68000 processor — no drilling, no soldering, no hassle. That version has been shipping for six months. The SE version uses a card, as does the very latest implementation, a completely redesigned controller card with a 32-bit data path for the Mac II.

All three versions maintain a fairly high degree of compatibility with the Mac screen: 82 dpi as opposed to the Mac's 72. That means fonts and icons are only 15 percent smaller than the standard Mac display. And of course The Big Picture's 17-inch monitor provides much more viewing area, allowing the display most of two facing pages while maintaining the Mac's "look and feel."

Founded by two brothers, Steve and Charles Vollum, in August 1986, E-Machines grew out of a company that specialized in programming for the Lisa and the Macintosh. The founders had monitors in their blood. Their father had helped to start Tektronix Inc. of Beaverton, Ore., a company noted for its high-end graphics terminals.

Two other principals, Steve "Splons" Splonskowski and Dan Weston, were highly experienced Mac programmers. In fact Weston "wrote the book." His two-volume *Complete Book of Macintosh Assembly Language Programming* is one of the standard texts.

E-Machines' monitor tubes, purchased from Panasonic, come coated with phosphors that give The Big Picture its distinctive color. The company builds its own sheet-metal-and-plastic enclosures, allowing an unusual ergonomic design that "nestles" the display and the Macintosh into a footprint smaller than would seem possible.

Running at a cool and comfortable 67 MHz, The Big Picture doesn't require a fan. Steve Vollum claims it is the only large display for the Mac to meet FCC Class B emission standards, which means you can use it in your home without "jamming" nearby televisions or stereos.

> The idea of large displays for the Mac is so new that most engineers agree we have not seen anything yet. We can probably look forward to inexpensive displays that break the $2,000 barrier by using components designed for the Mac.

The Big Picture works very nicely with General Computer's 68020 expansion board for the SE, the HyperCharger, Vollum says.

"It's got a 32-bit 68020 and a floating-point math coprocessor, just like the Mac II, and a megabyte of 32-bit-wide memory. You plug it into the slot and your SE benchmarks slightly faster than a Mac II. However, now you've used up your slot. So we worked with General Computer and they added a port for The Big Picture. That way you can have a 68020 with lots of memory and a big display. And it's still in the nice portable Mac SE package," he says.

Plus owners have an accelerator option, too. The TurboMax board from MacMemory is compatible with The Big Picture. And the long-delayed DynaMac portable is supposed to come with an E-Machines port built in.

Faced with a booming market and stiff competition, E-Machines is working hard to keep improving its product. New software, called Double Feature, now being distributed to dealers, lets you work on the regular Mac screen while a blown-up view of the same page

Continued on next page

Continued from previous page
is displayed on The Big Picture.

Another included application modifies Apple's Switcher utility so one application can be installed in the Mac monitor while another shows up on The Big Picture.

Over the summer, the company plans to ship a new version of its controller card for the SE and Plus, which it says will offer higher contrast and an electronically "cleaner" display. And, Splonkowski says, E-Machines is now testing software that will allow the use of the original Mac screen for Desk Accessories or applications, a capability featured by Radius Inc. of Sunnyvale, Calif., but previously lacking in The Big Picture.

MegaScreen: Have it your way

Founded in 1983 by Diane Scott and Janek Kaliczak, MicroGraphic Images has manufactured peripherals for the Macintosh since the computer was first introduced. The Canoga Park, Calif., company sold some of the first memory upgrades for the Macintosh 128 and 512K under the name MegaMac. But Scott says the MegaScreen is the company's first nationally marketed product. At 75 dpi, the MegaScreen comes close to matching the Macintosh's 72 dpi. Scott says, "We tried to stay as close to WYSIWYG as possible."

Like SuperMac Technology, MicroGraphic Images buys its monitors from Moniterm. The feature that sets the MegaScreen apart from the SuperView and others on the market is that its software gives the user the power to control several technical characteristics of the display. The MegaScreen comes with several preconfigured image sizes, but the user can modify the horizontal and vertical dimensions up to a maximum of 1,020 by 900 pixels. Scott says the high-resolution capabilities of the MicroGraphic monitor "really make a difference for graphics and computer-aided design applications."

MicroGraphic ships several models of the MegaScreen for the Mac 512Ke, the Plus and the SE. The version now marketed as MegaScreen Plus uses the NTSC (National Television Standards Committee) protocol to connect directly to monitors designed for television signals or to VCRs so the Macintosh screen can be videotaped to create demonstration or training tapes. Other models connect to large-scale presentation display devices such as rear-screen and liquid-crystal projectors, including the $35,000 Hughes Liquid Crystal Projector.

Radius: Ex-Apple VIPs

Of all the large-screen solutions, Radius' vertical "portrait-mode" display for the 512K and Plus, and soon for the SE and the Mac II, is the one that comes closest to the Mac's standard. It also is the only one that lets you use the Mac screen and the large display at the same time and move back and forth between them. Apple liked this two-screen trick so well it borrowed it, with programmer Andy Hertzfeld's permission, for the Mac II.

Radius' total Mac compatibility is no accident because the company is populated almost entirely by ex-Apple VIPs: Mike Voich, marketing manager for the original Mac group; Burrell Smith, who designed the Mac's digital electronics; Alain Rossman, chief Mac evangelist; and Matt Carter, a key designer of Apple's highly automated Macintosh factory. Then there is software wizard Hertzfeld, who wrote much of the Mac's ROM microcode and consults regularly for Radius.

Smith and Hertzfeld are next-door neighbors. "When Burrell and I quit Apple in 1985," Hertzfeld recalls, "we took it easy for a while. But at the time the Mac wasn't doing nearly as well as it's doing now. We had put so much of our lives into making it in the first place that we wanted to solve some of the limitations, and we both thought, 'Uh, the size of the screen.' "

Smith built the Radius prototype on his ping-pong table; Hertzfeld wrote some simple software; and they ordered a monitor from "this sort of short-order-type video company," Hertzfeld says. A rudimentary version of the Radius was up and running in March 1986.

It is no surprise that Hertzfeld and Smith, as Mac originators, made a conservative decision to stay close to the familiar Mac resolution of 72 dpi. But then they made an extremely radical decision as well. They opted for a large, vertical, "portrait-mode" screen shaped like an 8.5-by-11-inch piece of paper.

"The resolution decision was fairly straightforward," says Hertzfeld. "For various software reasons it turns out if you want to increase the resolution, you'd better double it or all your fonts are useless and distorted. And doubling it makes the actual image size smaller than it is on the Mac and very hard to read.

"Also we felt that the central Mac user base was probably involved with document preparation as opposed to spreadsheets, CAD/CAM or whatever, and for documents what's essential is to see the page you're working on in its entire-

The Big Picture

E-Machines Inc. ☆☆☆☆
7945 SW Mohawk St.
Tualatin, Ore. 97062
(503) 692-6656
$1,795 (street price); **$1,995** (list price)
For the Macintosh SE; models available for the 512 and Plus

What is most striking at first glance about The Big Picture from E-Machines is the color of its display.

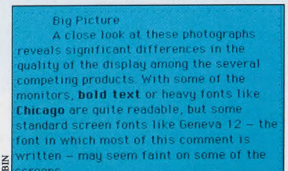
A slightly yellowish cast makes "white space" on screen look greenish and "black" pixels look slightly brown. Macintosh veterans accustomed to the crisp black and white of the Apple screen may find the switch disconcerting, but on the whole, the E-Machines' display turns out to be pleasant and highly readable.

The Big Picture screen, a 17-inch diagonal model from Panasonic, gives an image area of about 12.5 inches across by 9.5 down. At a density of 82 dots per inch, horizontal and vertical, everything displayed on the screen is about 15 percent smaller than on the Macintosh monitor. Even so, there is not quite enough for two facing pages, but most of the text will be visible if windows and rulers are arranged to hide empty margins.

A tabloid page displayed at "Actual Size" in Quark XPress will fit easily across the screen, but several inches will be cut off the bottom unless a reduced view is selected. In Excel, the monitor will display 55 rows by 15 columns of standard 10-character-wide cells.

The material coating The Big Picture tube, classified as a "medium-persistence phosphor," keeps an electronic charge longer than the faster-fading phosphors used in rival monitors. The result is a steady, almost flicker-free display at the cost of a slight shadowing effect for a second or two after the screen is modified. Reflections seem to stand out on the light-toned screen, and the display does bow noticeably, but in other respects, we noticed no distortion of text or graphics.

Though not as compact as the single-page



MARK FARBIN

Radius display, The Big Picture does take up less desk space than the other large monitors. The case is designed so the Mac can be tucked away behind the right side of the screen with the floppy drive in front and the programmers' switch in the rear still accessible.

The software that was originally distributed by E-Machines with the monitor did nothing but install a file in the "System Folder" that would tell the Macintosh to display on The Big Picture. It included a routine that gets stubborn programs like MacWrite to take advantage of the larger screen space, but otherwise there were few extras. While The Big Picture was in use, the Macintosh's internal monitor simply went blank.

Now, however, E-Machines is shipping new software, dubbed Double Feature, that brings the old screen back to life. With the help of a utility program that will be included, Switcher will install one application in the large monitor and another in the small screen. Or the large screen can be used to run a blown-up view of what appears in normal size on the built-in screen, a function that should be especially useful for those who want to use their computers as presentation tools.

The company also says it expects to release software now being tested that will allow full use of the Mac's screen for items such as Desk Accessories and tool palettes.

MegaScreen SE

MicroGraphic Images Corp. ☆☆☆
20954 Osborne St.
Canoga Park, Calif. 91304
(818) 407-0571
$1,895 (street price); **$1,995** (list price)
For the Macintosh SE; other models available for Plus and 512K Enhanced

A quick read of the MegaScreen SE manual is tantalizing for users with a hunger for a bigger screen.

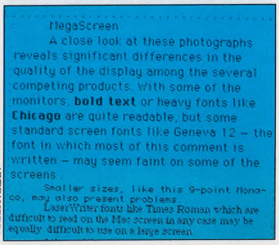
MicroGraphic Images' 19-inch monitor, with a user-configurable display and features that make use of the Mac's internal screen, looks like a great monitor — on paper.

In fact, the MegaScreen SE's display is somewhat disappointing. The image is low-contrast and not as sharp as the Mac's.

Text near the edge of the screen is difficult to read, a limitation shared by other large monitors. Because anything displayed on a screen must follow the curve of the picture tube, text at the bottom and sides of a 19-inch monitor curves away from the user noticeably. (A tilt/swivel stand helps.)

The MegaScreen displays 75 pixels per inch, so text is shown at nearly the same size as on the Macintosh's 72-dpi screen. In Excel, the MegaScreen will display 46 to 62 rows and up to 13 columns of standard cells, depending on the user-selected screen configuration.

The MegaScreen comes with software that provides several useful options. Unique among these is the ability to customize the display.



MARK FARBIN

Users can easily adjust the monitor's resolution, aspect ratio and refresh rate to match their needs. Custom configurations can be created for specific applications.

It is relatively easy to do word processing at a lower vertical resolution to avoid screen flicker, then to quit the application and switch to a configuration with maximum resolution for graphics, computer-aided design or page layout.

For network users, the software includes MegaTalk, an interoffice communications package that uses AppleTalk. While the MegaScreen is in operation, MegaTalk lets users send and receive messages electronically on the Macintosh's internal screen. MegaTalk also will run on a Macintosh that is not equipped with a large screen.

MegaZoom, another software utility that comes with the MegaScreen, lets the Macintosh screen function normally while the MegaScreen displays the same image, doubled in size. It can be used as a tool for demonstrations and displays and as an aid for the visually impaired.

ty. So we chose the system with the smallest footprint that let us display an entire page." What this analysis leaves out, of course, is desktop publishing, a kind of document preparation in which the ability to see facing pages can be critical. By choosing the smaller screen, Radius' founders may have cost themselves a larger share of the booming desktop-publishing market.

The toughest engineering challenge Hertzfeld faced was giving Radius its two-screen capability. "It was difficult," he says, "but that's the whole point of engineering, to do things that other people can't do. Burrell felt, 'Gee, you still have this Mac screen even though you bought this big one. There has to be some way to use it.' We finally figured out that if you patch QuickDraw at a low enough level, you can put both screens in one coordinate space. And then everything falls out from that; windows straddling the screen. It was the first time anyone had done anything like that. I was very flattered when Apple asked my permission to adopt it for the Mac II. It was easier for them, of course. They could rewrite QuickDraw, whereas I had to patch in the cracks."

Radius also put a lot of thought into aesthetics and ergonomics, everything from a larger menu bar easier to see on a tall screen to an oversized cursor. The new version for the SE even provides a virtual "high-res" option that runs at 1,024 by 864 pixels, allowing users to slide across a wide, "landscape-mode" screen big enough for spreadsheets or two full facing pages while maintaining the same readable font size as the standard Mac screen.

What's new

The very idea of large displays for the Mac is still so new that most engineers agree we have not seen anything yet. We can probably look forward to big color screens, application programs that check for screen size and then automatically adjust resolution and font size, optical cables to get the video signal from card to screen faster and more cleanly, and last but by no means least, inexpensive displays that break the $2,000 barrier by using components custom-designed for the Macintosh as opposed to $50,000 workstations.

All in favor, vote "Eyes!" ■ — *Charles Hoblitzelle contributed to this article.*

SuperView

☆ ☆

SuperMac Technology
295 N. Bernardo Ave.
Mountain View, Calif. 94043
(415) 964-8884
$1,795 (street price); **$1,995** (list price)
For the Macintosh SE

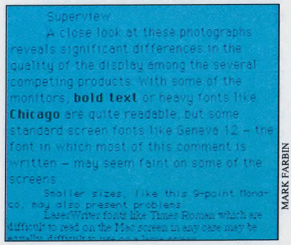
If seeing the largest possible number of words or columns is what you are after in a large-screen monitor, then SuperView may be for you. But be prepared to put up with a display inferior in quality to what the Mac and other third-party vendors offer.

Few would argue that SuperView is not big enough. The monitor, the same Moniterm model MicroGraphics uses for the MegaScreens, measures over 19 inches diagonally, with an image area of about 13.75 by 10.5 inches. SuperMac's controller, as currently shipped, squeezes no fewer than 1,397,760 pixels (1,365 by 1,024) on the screen, or eight times the number of pixels the regular Macintosh screen generates.

With so many pixels to paint, SuperView displays more information than any of the other screens now available. Several competitors have announced (but not yet released) products with even higher resolution.

In Excel, 1,440 cells, 72 rows by 20 columns, can be on screen at once; in Word 3.0, the ruler can be dragged out to more than 18.5 inches; in PageMaker 2.0, it is possible to work on two facing U.S. letter- or legal-sized pages in full view, or two tabloid pages in the 75-percent view.

The issue is whether all this information will be readable. At 94 dpi, as opposed to the Macintosh screen's 72 dpi, pixels on the SuperView are only about three-quarters of their size on the Mac, and text, icons and graphics look minuscule. The problem is compounded by the SuperView display's poor contrast, which we found noticeably worse than on any of the other products we tested. Even with the brightness turned up to the maximum setting, the whole screen has a milky quality that makes blacks too light and whites too gray. We were unable to determine whether this problem is caused by the number of pixels displayed or by some other reason. The display also has a bothersome flicker, especially in the horizontally striped Title Bars of windows.



MARK FARBIN

One peculiar feature of the SuperView is its occasional reluctance to allow the cursor into the vertical Scroll Bar or the Size Box in the lower right corner of the screen. Moving the mouse had no effect; the cursor simply stopped just to the left of the scroll bar.

The SuperView software is minimal at best. A resource placed in the System folder causes the Mac to turn on the SuperView at boot time, but there are no options for configuring the screen. If the SuperView is disconnected and the Mac started up without removing the monitor's start-up software, the Mac will simply hang, with a gray screen and no error message.

SuperMac President Steve Edelman blames most of the problems on the priority the company has given to the celebrated Spectrum color system for the Mac II. With that product done and with backing from SuperMac's new owner, Scientific Micro Systems, he promises solutions: a release of the SuperView software within a few weeks with an option to set screen resolution to 1,280 by 960 pixels and hardware improvements that will, he says, make a "drastic difference" in the display's quality.

Full Page Display

☆ ☆ ☆ ☆

Radius Inc.
1050 E. Duane Ave.
Sunnyvale, Calif. 94086
(408) 732-1010
$1,695 (street price); **$1,995** (list price)
For the Macintosh Plus; SE model scheduled for release in July

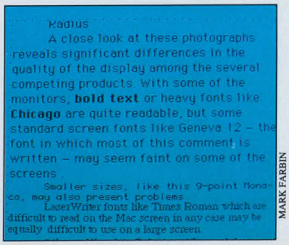
In a sense, the Radius Full-Page Display (FPD) is a David among big-screen Goliaths.

With a vertically oriented image area measuring "only" 8.25 by 11.5 inches, the Radius screen will not show the multiple-page layouts or enormous spreadsheets that fit on the competitors' products. On a pennies-per-pixel basis, it looks like a bad deal.

What the Radius screen does have to offer can be summed up in one word: elegance. Its design is attractive, its footprint relatively small, and the quality of its display unmatched.

Setting up the FPD, unlike other monitors, requires no modification to the System file. Once the display is connected, it operates from special ROM chips ("firmware") designed by Andy Hertzfeld, one of the creators of the Mac system and now a principal in Radius Inc.

When the Radius screen is turned on, its main strength is immediately apparent. Its clarity and contrast surpass any of the other monitors we examined. Although the 77 pixels-per-inch density is slightly different from the Mac's, the coloring and general appearance of the Radius screen make it look like a larger version of the Mac's own display. Text is easy to read, with virtually no distortion or flicker.



MARK FARBIN

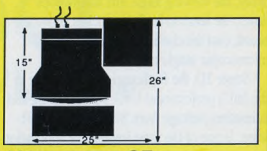
The Radius' portrait-mode screen displays a full 8.5-by-11-inch page. Running Excel, the Radius shows 59 rows by nine columns of standard 10-character cells. For its forthcoming SE monitor, Radius promises a "virtual large screen" that will eliminate the need to scroll when viewing out-size documents. Instead, users will only have to move the pointer to the edge of the screen corresponding to the area of the document they want to view.

Since its introduction, the FPD has permitted concurrent use of the Mac's internal screen, a feature that the other display systems are only now beginning to provide. Users can move their Calculator, Calendar and other Desk Accessories, or an application program's tool palette, onto the Mac screen while keeping their main document on the Radius screen. Moving between the two monitors requires just a roll of the mouse.

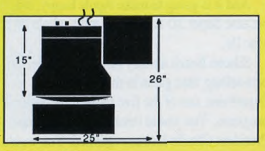
Note: MacWEEK tested the Mac Plus version of the Radius screen. The SE model, already delayed several times, is now due out in early July.

HOW LARGE SCREEN MONITORS EAT UP YOUR DESKTOP

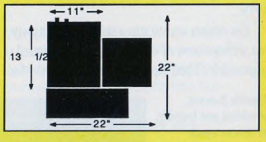
A large-screen monitor will add plenty of room to your Mac desktop, but don't forget that any of these products will take a big chunk of your real desk. The schematics depict a Mac, a SE keyboard, and each of the monitors sitting on a standard 54" x 27" desk.



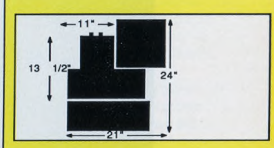
Megascreen SE
Nearly a foot and a half wide,the Megascreen dominates the user's desktop



SuperView
The same size as the Megascreen, the SuperView also does not leave much work space



Radius Full Page Display
The Radius' footprint is significantly smaller than the other monitors



The Big Picture
The Big Picture has a space-conserving design that lets the Mac "nestle" behind a corner of the screen.

Silicon Beach enters third dimension

Target-shooter takes aim at 3-D computer graphics

BY MICHAEL GOODWIN
MacWEEK Staff

SAN DIEGO — A rocket blasts off on the Mac II's color screen. Flame explodes from the engines, a lower stage disengages and falls away, the control module opens and out comes a multicolored apple!

Charlie Jackson, president and founder of Silicon Beach Software, mouses over to the menu and clicks on another file. Movie-star handsome, with wavy black hair and a quick smile, Jackson, an ex-Marine officer, is founder of the San Diego Mac User's Group; co-founder of the new Mac Vendors' Association; author; consultant; and ace target shooter with handgun, rifle and Macintosh software.

Jackson clicks on another file. A chessboard appears in a colored, wire-frame version and quickly fills in with solid, shaded colors. Suddenly, the viewing angle tilts and swoops down; we seem to be flying inches above the board, past the chess pieces as if on some microscopic magic carpet.

Super 3D, the forthcoming ("sometime in the fall") professional-level 3-D modeling and animation package from Silicon Beach Software, is one of the most impressive application programs ever written for the Macintosh. It is going to make architects, interior designers, advertising artists and engineers very happy.

And it is going to make Apple happy, too, because Super 3D is going to sell a whole lot of Mac IIs.

Silicon Beach already has Dark Castle, the best-selling Mac game in the country, and SuperPaint, one of the five top-selling business programs. You would think that would keep President Charlie Jackson satisfied. You would be wrong.

Jackson, with a bachelor's degree in Eastern studies from UCLA, a master's degree in linguistics and four years of active duty in the Marines, got his first computer, an Apple II, in 1979.

His dream was to run a software company, but without tons of start-up capital it seemed impossible. Then Apple released the first Macintosh, and Jackson saw his chance. It was Airborne!, a game for the Mac written by Jonathan Gay to Jackson's design.

"When a new computer comes out, there's always a real hunger for software, lasting anywhere from one to two years," Jackson says. "Back in those days, there was a lot of demand for any Mac software, especially good arcade-style action games.

"We worked all-nighters, went down to the last minute, left for the Macworld Expo at 4 in the morning, just to have a working version to sell. But of course it wasn't ready. We were able to show it, though, with the Ride of the Valkyries in digitized sound, and it really got people's attention. The distributors started coming to us, which was very unusual."

Airborne! was a gigantic hit, and Silicon Beach followed up with Paint Cutter, a MacPaint Desk Accessory "designed by the San Diego Mac User's Group"; World Builder, a program for creating adventure games; Enchanted Sceptors, an adventure game created with World Builder; and Silicon Press, a flexible utility program for printing forms and labels.

Then, in October 1986, Silicon Beach released Dark Castle. It was a dark day indeed for Mac users, who were about to lose thousands of man/woman hours on the addictive entertainment.

"We've probably sold 20,000 by now. We did 6,000 boxes, and then we did 10,000 boxes, and we just had to make more boxes. I wanted to create a game that was really large in scope with outstanding graphics, and we knew that nobody could do what we do with digitized sound. Also, I wanted to push the technology a little. Games sometimes do that."

Aside from distinguished graphics and sound, there is one truly amazing thing about Dark Castle: It is one of the very first games to be released without copy protection.

"We never copy protect our 'productivity' software," Jackson says. "I struggled with that issue for a while. When it's your own company and suddenly you've got a third mortgage on your house, it gets scary. You can get paranoid real easy. Finally, I decided against it. But games are another issue.

"Still, with Dark Castle we didn't have any choice. Since it came on two 400K disks it was mandatory that people could combine them onto one 800K disk because so many people have 800K drives now. And with so many hard disks, you had to be able to copy it to a hard disk. If you look around and say, 'How can I put copy protection on two disks and still allow them to be copied into these different formats?' there's no solution. We're not the first game to do it, but we're certainly one of the first. And it's been a very pleasant surprise because I get a sense that it's actually pirated less."

Exactly one month later, in November 1986, SuperPaint appeared. It had taken Silicon Beach two years to get it right.

"MacPaint was a wonderful program," says Jackson. "It pioneered the whole idea of painting, ran on a 128 Mac, genius stuff. But it's limited. You've only got a small working area, you can't cut and paste."

SuperPaint was the full-powered graphics program a lot of Macintosh users had been waiting for. It lets you work on a full page with auto-scrolling, complete cut-and-paste capability, even windows.

Most important, it combined "painting" (bit-map) and "drawing" (object- oriented) capability in one program. Virtually on release, SuperPaint jumped into the five best-selling Macintosh business programs, where it has remained ever since.

In the midst of this explosion of creativity, Jackson has found the time and energy to start the Mac Vendors' Association, along with Sue Morgan from Softview, the company that puts out MacInTax, and Anne Hartheimer, president of Semantic Microsystems.

"A lot of the smaller companies struggle through a lot of the same issues," Jackson says, "and when you reach a certain point, you come up with solutions — like how to deal with Apple, for instance. Who are the good distributors? Where to spend the few advertising dollars you've got?"

The association will have its first official meeting in August at Macworld Expo. Meanwhile, Jackson has started a Mac Vendors Association bulletin board on CompuServe, a members-only special interest group within the Apple Developers' Forum. Applicants for membership are invited to log on.

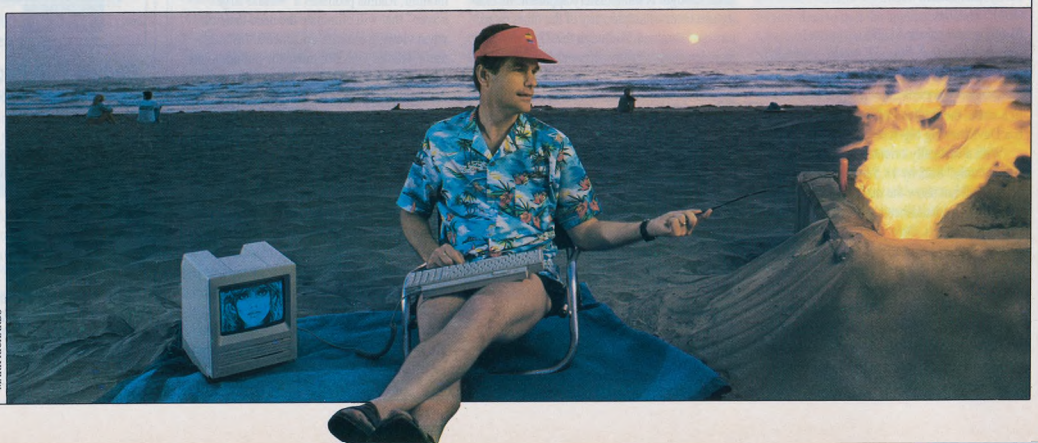
But clearly, Super 3D is the biggest thing Silicon Beach has ever taken on. Using built-in drawing commands, users can create complex two-dimensional graphics, then rotate them through a third dimension to give them solid form. Once objects are stored in memory or on disk, the Mac can combine them into composite images and "view" them from any angle or perspective in three spatial dimensions. The Mac II allows full color, but Super 3D runs just fine and looks great in shades of gray on the SE.

The mathematical calculations necessary to generate a new viewing angle of a composite three-dimensional image are immense, and it takes a super computer like the Cray mainframe to animate graphics in real time. The Macintosh II is not that good yet; it takes Super 3D about a second to calculate and display a "rotated" view of a three-dimensional object on the Mac II and about two seconds on the Mac SE.

To beat this, Super 3D allows users to save successive images as "frames" and displays them, one after another, to produce the illusion of real-time motion. To create the chessboard flyby, for example, about 50 frames were generated, each one a little closer to the imaginary chessboard. The program saved each frame and flashed them on the screen, 24 per second, to create a computer-generated, animated "movie."

The potential is stunning. For example, an architect can design a house in computer memory, generate a series of views, save them, and animate a "walk-through" in which a client can stroll through the front door of his new house, peek into the kitchen, look around the bedroom and walk down the basement stairs. If he does not like something, the architect can change it easily, before a single nail is driven.

At $295 ($495 for the full-color, Macintosh II version), Super 3D is by far the most expensive product Silicon Beach has ever produced. But Jackson is not worried about people perceiving it as over-priced. Super 3D lets people do something they could never do before. It is the kind of program that makes people buy computers just so they can run them; the kind that puts computers on the map and software companies off the top of charts. ■



Charlie Jackson, president and founder, of Silicon Beach Software.

MARK RICHARDS

MACWRITE

Continued from Page 1

cessor under its development hat, code-named "Chocolate," says a source close to the firm.

The same source says Chocolate will be released by the first quarter of next year and will compete with word processors such as Ann Arbor Softwork's FullWrite. Chocolate is now being developed within Apple but may be marketed by Apple's software spin-off company.

Differences in the Mac II's bus structure and ROM calls have caused many programs to run incorrectly on the Mac II. Word-processing programs Microsoft Word and T/Maker's WriteNow, however, already run on the Mac II.

Ira White, a ComputerLand sales representative in San Francisco, says there has been no demand for the new version of MacWrite. And the scarcity of Mac IIs makes it difficult to project a demand for the word processor.

"Of the 1.1 million Macs out there, 600,000 users got MacWrite for free. About 200,000 have paid for the program," says Tim Bajarian, vice president of Creative Strategies in San Jose, Calif.

MacWrite

With MacWrite, you create documents that look the same on the screen as they'll look when you print them. Rather than working around a lot of commands embedded in your text, what you see is what you get. You use the mouse to select text and remove, copy, or move it. You can customize your documents with many fonts and styles, and you can control margins or line spacing with a single click.

❖ *MacWrite version:* You should use MacWrite version 4.6 or later with your Macintosh II.

Manual for Macintosh II calls for non-existent version of MacWrite. (Chapter 5, Page 196).

In January 1986, Apple stopped bundling MacWrite with Macs and priced it at $125.

Users will be able to upgrade to Version 4.6 by taking the master disk to a dealer. ■

ALDUS

Continued from Page 1

issue that's going to keep on going." The Seattle-based company's PageMaker application, which has sold 60,000 copies since its 1985 introduction and was recently introduced in a PC version, has received a wealth of healthy publicity leading into the stock offering.

Despite the leap in price, several analysts say the stock had not been underpriced nor had the offering been too small.

"You don't want to leave a bad taste in investors' mouths" by pegging the price too high, says Gary Woolen, a securities analyst with Bear, Stearns in San Francisco.

The offering quashed published rumors that Aldus was a buy-out target of Apple Computer Inc. of Cupertino, Calif., or Microsoft Corp. of Redmond, Wash.

Along with the huge jump in price, strong market interest was indicated by the unusually large number of specialists tracking the stock. Forty of these "market makers," who negotiate the stock price, were handling Aldus Tuesday.

One analyst involved in the stock offering says the $14-$16 prospectus price was based on the price-to-earnings ratio of comparable software firms, including Microsoft and Ashton-Tate of Torrance, Calif. The ratio measures the relationship between the price per share of the stock and the earnings per share.

But heavy demand for the stock drove the initial offering price to $20. At $35 per share, the price-earnings multiple is about 35, based on analysts' projections of a 90-cent-to-$1 per-share earnings for next year. That compares to Microsoft's current multiple of about 25.

The analyst says few of the large institutional buyers were going near the stock at Tuesday's price. Smaller retail buyers, many of whom were basing their purchase decisions on the phenomenal stock-market success of Microsoft and Adobe Systems Inc. of Palo Alto, Calif., were driving the price up.

Paul Brainerd, the 39-year-old Aldus founder, president and CEO, has 4 million shares, or 44.9 percent of the company. He is selling 150,000 shares and will retain approximately 37 percent of the company.

In 1985, Aldus reportedly sold $2.2 million worth of desktop-publishing software, earning $520,000. In 1986, the company sold $11.2 million and earned $2.34 million.

As the stock opened, Aldus went into a 90-day "quiet period" during which the company can release no information concerning projected earnings or new products. A quiet period follows all initial public offerings. ■

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APOLLO

Continued from Page 1

analyst Marshall Leisten.

Apollo was founded in 1980 by a coalition of computer professionals from Digital Equipment Corp., Prime Computer and Data General Corp. It broke ground with its first products by offering 32-bit workstations with integrated graphics and networking.

The company expanded quickly as the engineering markets grew. Apollo now has 3,600 employees and operates in 20 countries. But the computer industry shakeout of 1984-85 hit its technical market, and Apollo was hurt further by its own actions. Its workstations used a proprietary operating system and a Token-Ring local-area network when the industry was heading toward the UNIX operating system and Ethernet. More importantly, Apollo lacked an affordable low-end computer.

In 1984, Apollo began addressing these problems. Thomas A. Vanderslice, former CEO of GTE Corp., was brought in as president and CEO. Vanderslice, who became chairman in early 1985 when co-founder John William Poduska voluntarily stepped down, quickly cut production, stepped up marketing and planned a new product strategy.

Apollo quickly moved to reduce its dependence on OEMs. At one point, three firms accounted for 70 percent of Apollo's sales. Now, OEMs comprise only about 30 percent of revenues.

But the key to recovery was probably the introduction in February 1986 of a low-end workstation, the Series 3000, which offered the same performance of the previous high-end machine at less than half its cost.

"More than half [of Apollo's] revenue comes from the low end now," says Montgomery Securities's Leisten.

Besides the Series 3000, the company offers two other product families, the DN 500 workstation and the DSP 9000 minisupercomputer server. A variety of products have enabled the workstations to run UNIX and MS-DOS as well as the company's AEGIS operating system. Last April, the series 3000 was modified so workstations can sit directly on Ethernet as well as Apollo's Token-Ring LAN. The same connectivity is coming for the firm's higher-end machines.

Such moves have brought Apollo back from the depths it reached in 1985, when it posted a net loss of $1.5 million. Analysts are generally bullish on Apollo's future, citing the high degree of connectivity of its products, its powerful software development tools and its leadership in the CAD market. Montgomery Securities estimates profits for 1987 will rise to 79 cents a share on sales of $543 million, compared with 27 cents a share on sales of $392 million in 1986.

Still, questions about Apollo's future remain. Price-slasher Sun Microsystems Inc. of Mountain View, Calif., has outpaced it and looms as a formidable opponent if Apollo wants to challenge it on a price basis. Each firm has about a fourth of the market, but in the first quarter, Sun passed Apollo for the first time, with $142 million in revenues and a $10.2 million profit.

"The issue for Apollo is are they going to play that game or are they going to play a different game," says Bob Herwick, senior technology analyst with Hambrecht & Quist in New York. Herwick says he believes Apollo will continue emphasizing performance and service, and it also will look to fill vertical market niches, settling for healthy, slower growth.

Another question mark concerns the new products from personal computer makers, like Apple's Macintosh II and IBM's Personal System/2, that have improved graphics and communications capabilities so much that they are expected to eventually impinge on the low-end workstation market.

The Macintosh, especially, gets high marks from Herwick, but he says the networking capabilities will not be a match for Apollo in its markets. For example, the Fairbanks Morse engine division in Beloit, Wis., which makes engines for ships and submarines, a year ago bought three Apollo workstations, two Series 3000 and one DN 560. The manager of integrated logistics support, Nancy Stiener, did not seriously consider personal computers because she needed the power of a professional workstation. She chose the Apollo products because of their power, connectivity and versatility.

Apollo is monitoring the personal computer makers carefully but does not appear too concerned right now. "Today these products still lack the level of networking ability and distributed computing offered by workstations," says Cheryl Vedoe, group marketing manager for personal workstations. "They still lack the high-performance, high-resolution graphics that are really integrated into the environment. And most PCs today are single-tasking stations rather than the multi-tasking stations offered by Apollo and other vendors."

Agreeing in some respects is Gerard Langeler, president and chief operating officer of Mentor Graphics, an Oregon-based maker of CAE systems and Apollo's largest customer. Personal computers have not offered much competition to the performance and file-sharing abilities of workstations, he says.

But Langeler turns the typical equation around, saying as workstations fall in price, they might infringe on PC markets. Companies always liked the workstation's greater power and abilities compared with personal computers, but the price held them back, he says.

Apollo is aware of Sun's price cutting, and officials have hinted steps to counter the low-end competition may be brewing. Company policy is to double performance or cut the price of a product in half every 14 to 18 months.

Apollo will not comment on specifics, but it is rumored the firm will soon introduce a new low-end system from an outside vendor. The vendor's identity is a mystery. At one point, the odds favored Apple. However, both Sun and Apple have denied it. ■

SARA PUTNAM

Cheryl A. Vedoe, group marketing manager, and Frank Casanova II, Apollo senior product manager.

Apollo Computer Inc.

330 Billerica Road
Chelmsford, Mass. 01824
(617) 256-6600
Founded: February 1980
Work force: 3,600 (as of January 1987)

Sales
1986 : $391.7 million
1985 : $295.6 million

Net Profit
1986 : $9.3 million
1985 : ($1.5 million)

Earnings per share
1986: 27 cents
1985: (4 cents)

Installed Base: 36,130 workstations worldwide (as of April 1987)
Customer Base: 2,200 corporate accounts worldwide (as of April 1987)

JOBS

Continued from Page 1

computers to share the same laser printers. The company also showed K-Term, an AppleTalk-based terminal emulator so Macintosh computers can act as terminals on UNIX systems, and a variety of Ethernet products for the Mac.

According to Richard Heats, Apple account manager for Unisoft, "Developing a more human, more intuitive user interface for UNIX should be one of Apple's goals. The first step toward this is making the Macintosh toolbox available under A/UX."

In his speech, Jobs agreed that changes in the interface are necessary for UNIX to compete successfully against personal computer operating systems.

Jobs cited the 3 million installed base of Apple IIs, the more than 6 million MS-DOS computers and the more than 1 million Macintoshes. "These three products have over 10 million computers out there that provide financial incentive for third parties to write software," he said.

He projected that "OS/2 is going to be measured in the millions. It could be 6 million, it could be 1 million, but it's clearly going to be in the millions. Where's UNIX? UNIX (installed base) is under a quarter of a million."

In an effort to galvanize the UNIX community, Jobs cited the Macintosh as an example of a complete computing environment with its networking (AppleTalk), operating system (Macintosh operating system), graphics routines (QuickDraw), applications tool kit and applications software.

In comparison, Jobs says that UNIX provides a solid networking and operating system but lacks graphics routines and an applications tool kit.

Jobs came out strongly in favor of a PostScript standard for screen graphics. In Jobs' view, PostScript must be an integral part of a future UNIX windowing environment. One current contender for a UNIX windowing standard, X-Windows, does not support PostScript.

"X-Windows is brain-damaged," Jobs says.

Jobs' choice of words was not novel. Last fall, Jobs called Hewlett-Packard "brain-damaged" for supporting DDL page-description language instead of PostScript. This spring, H-P adopted PostScript in response to market pressure.

Despite the fact that many of the vendors attending the conference support X-Windows and disagreed with Jobs' statement, many agreed there is a need for an interface standard.

Another contender for that title is the NeWS windowing system from Sun Microsystems Inc. of Mountain View, Calif., which does supports PostScript. However, Jobs says NeWS would "not necessarily" become the standard graphical interface.

In his speech, Jobs delivered a list of requests to the UNIX developers:

- Develop one UNIX (referring to the many versions and "flavors" of UNIX available).
- Integrate PostScript in a standard graphical interface for UNIX computers.
- Improve the UNIX interface. ("UNIX must be a means not an end.")
- Eliminate the need for the "systems administrator." ("You must be able to take a UNIX computer out of the box and make it work in 15 minutes, " Jobs said.)
- Evangelize third-party developers.
- Create a low-cost, breakthrough UNIX computer.

With the last item on the list, Jobs appeared to be talking about NeXT's new computers.

Jobs ended his speech by quoting Bob Dylan: "He who is not busy being born is busy dying."

He asked, "Is UNIX the Esperanto of the computer industry?" ■

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MAC THE KNIFE

The hills, Emily, the hills are alive with the sound of digits. Of the musical variety.

"My E-mail meter is running, Mac," Emily, the MacWEEK sysop, types. "Will you please get on with it?"

Actually, madam, they're very large hills of the Rocky type in Colorado, where a bunch of ex-Macintoshers are at work on some TS (That's *TOP SECRET*, Em.) digital sound-processing system. (Since The Knife knows, make it "FTS": former top secret.)

Next (Read nothing into that word, Em) we'll see and hear 30-second spots with John Denver yodeling about workstations and the meaning of life.

And there is more RISC in the striped orchard. You saw it up on Page 1 a couple of weeks back. Apple strolling across the dance floor toward RISC technology, with appropriate waffling from high-honchos and honchas. But this blade hears it that the company is looking at a release date — a soft target — for a risky-machine in the early summer of '89.

Such a device might or might not (The Knife is not one to make a commitment, even to you, Miss Emily) be tied to something unimaginatively called "MWS": Macintosh WorkStation. It's supposed to be a 170-Kbyte application that operates as a front-end to mini- and mainframe computers, forcing those giants' laptops to act in a very Mac-like fashion. MWS, not unlike MacNIX, is in beta now and coming soon, perhaps from the still-unnamed new software company.

Such a dual package would give Apple a harder charge into the CAD/CAM markets, where it would like to stake a bigger claim. Surely even you, Emily, have heard the industrial folk tales about how Exxon, Shell, Mobil and others have bought up all the rights to carburetors delivering 300 mpg? The Knife recalls that two years ago a company, Cadmus by name, developed a QuickDraw/Toolbox work-alike on a 68020-based Apollo system. Not as smooth as the real MacCoy, but it did work, then running about as fast as a plain-Jane Mac.

Apple wrote a check with a goodly number of numerals, got exclusive rights and no more is to be heard.

Switching to Switcher/Servant/Juggler. Last word is that the numbers after the name and word "Version" now read ".95." Look for it in late summer, sayeth none other than creator Master A. Herzfeld. Lots of capabilities for editing system resources; it will be possible to drag resources in and out. Kinda like The Knife's checking account, except the resources always seem to flow one way. Nevertheless, when the Servant does appear, the price will be right: free.

One always has to, ahem, monitor such transactions. Monitors, ah yes. Seems some Sony reps are claiming their color monitor is "identical" to the color monitor for the Macintosh II.

"Nay, nay. Say it ain't so," peal the Apple chimes. The company ordered? asked? begged? Mister Sony to build a color set with the same sharpness, clarity and resolution as the Macintosh black and white. New tube design resulted, cheer the insiders, in delivering something akin to high-end color photo lab systems and top-notch CAD/CAM gear.

The biggest challenge? Tough to get it down to the appropriate price threshold, but mission accomplished. Should be enough of the many-hued screens around at the August Macworld/Galaxy/Universe Expo in Boston. Cupertino, though, holds no exclusive on the new tuber. In time, it will take root in all sorts of viewing devices, Mackie figures.

More world of Sony, Emily. Remember that last week I told you about a shortage of Sony floppies?

"I try not to remember anything you tell me, Knife," types Emily E-mail.

This you will want to retain, my dear. A tipster from the Far East has seen some new Sony floppies, 10-Mbyte floppies, Emily. The access time takes ages now, but in a year ...?

Not hot enough for you? How 'bout this then: Sony also is fine-tuning 2-inch floppies that hold 1.6 Mbytes with a transfer rate as fast as a Winchester hard drive.

Still more? OK, the drive for these little wonders is the size of a cigarette package. Sell your stock in hard disk companies, Emily, right now.

And hold off on buying that 16-pound laptop just because it has a hard drive. They'll be in the liquidators' ads as soon as you can say, "Sore shoulder."

Finally, Emily, keep an ear out for developments of a 3.5 CD disc that'll pack 70 Mbytes. It'll READ! It'll WRITE! It'll ERASE! Your ever-faithful Mac will have more for you on this anon.

* * *

The Knife is waiting. MCI: "MactheKnife." I've got the quid, a MacWEEK mug, if you've got the pro quo in the form of a tip. ■

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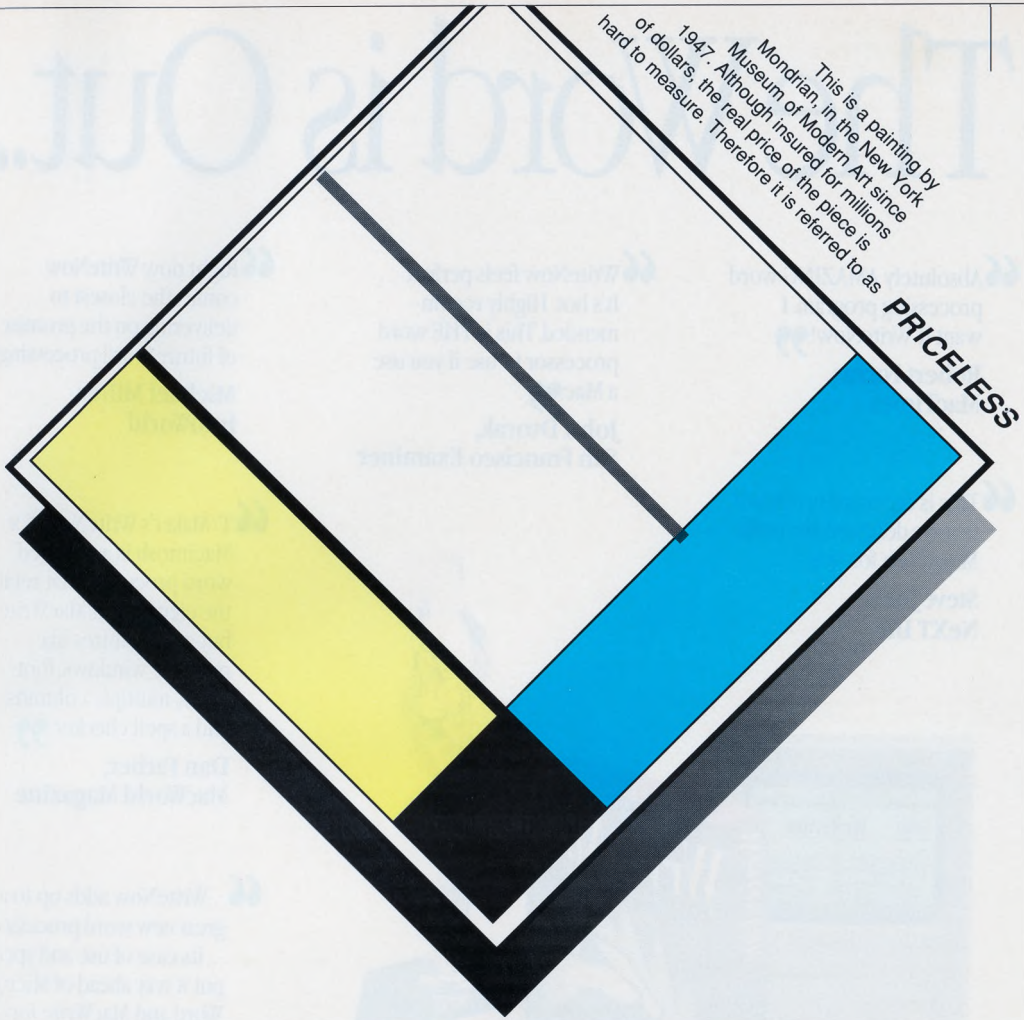

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MacWEEK

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Steve Jobs, NeXT Inc.

"T/Maker's WriteNow For Macintosh is a polished word processor that retains the elegance of MacWrite but adds features like multiple windows, footnotes, multiple columns, and a spell checker."

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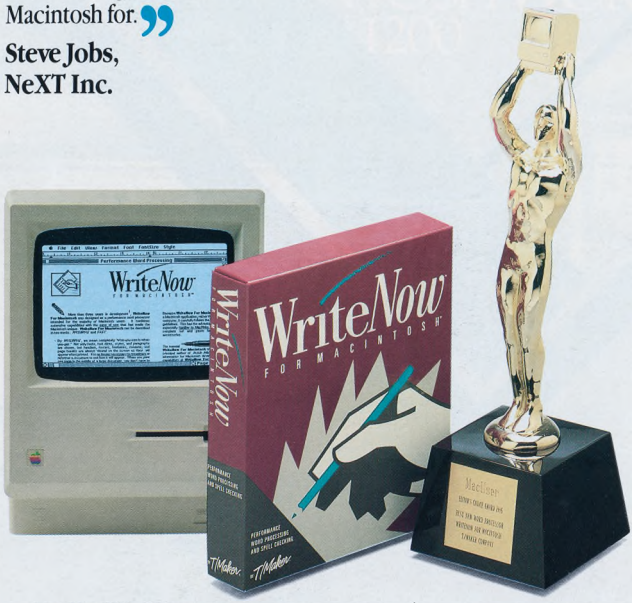

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